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Original Articles.

PRIMARY CHORIO-EPITHELIOMA MALIGNUM OUTSIDE OF THE PLACENTAL SITE.

WITH REPORT OF A CASE.*

PALMER FINDLEY, M.D.

CHICAGO.

In spite of the enormous amount of literature lately evolved on this subject, little has been presented that throws light on the true character of the growth. This statement was recently made by W. Risel, and I think we must all agree with him.

Progress has been made in the study of the histology of these growths, and we have arrived at a more definite understanding of certain points in the histogenesis which were formerly much discussed.

The term deciduoma malignum, introduced by Sänger, has been abandoned, and it is generally conceded that this growth, composed as it is of Langhans'[1] cells and syncytium, arises from the fetal ectoderm. But we seem to have been led into still greater confusion by the recent reports of cases of primary chorio-epitheliomatous growths arising outside of the placental site, and these not confined to the female, but found as well in the teratomata of the testicle.

During the past seven years 20 cases of primary chorio-epitheliomata arising in woman outside the placental site have been reported, and to this number I have added the report of a case that was primary in the uterine musculature.

The following is a brief résumé of the 20 reported cases:

CASE 1.—Reported by L. Pick[2] and Th. Landau, in 1897. Aged 22. Primipara; no abortions. There developed a hydatidiform mole, which was expelled spontaneously. While the mole was yet *in utero* a vaginal tumor the size of a walnut appeared in the anterior wall of the vagina. The surface of the tumor was slightly ulcerated, and bled freely. No blood came from the uterus. The tumor was removed, and three days later the mole was expelled spontaneously. Three and one-half years later there was a normal birth, and a second normal birth the following year. There has been no recurrence of the growth.

Histologic examination of the vaginal tumor showed villi resembling those of a hydatidiform mole in the center of a large blood coagulum. Langhans' cells and syncytium were found in abundance. The overlying mucosa was necrotic.

CASE 2.—Reported by Schmorl,[3] in 1897. Aged 38. Eighteen weeks after a normal labor a vaginal tumor appeared, which was followed by metastatic growths in the lungs, liver, kidney and intestine. The uterus, tubes and ovaries remained free. Death followed.

The histologic structure of the primary and secondary growths was that of a typical chorio-epithelioma malignum.

CASE 3.—Reported by Schlagenhaufer,[4] in 1899. Aged 38. IV-para. An incomplete abortion was followed in two or three months by hemorrhage from the vagina, and this recurred in six months. Ten months after the abortion a tumor the size of a large nut was found in the posterior wall of the vagina. It was round, of a dark red color, and on cross-section it appeared to the naked eye to be a blood coagulum. Microscopic examination showed the blood clot to be invaded by syncytial and Langhans' cells—a typical chorio-epithelioma. The overlying mucosa was broken through by the tumor mass, permitting blood fibrin and tumor cells to approach the surface. Twenty-one months after the vaginal tumor was removed the patient was reported well.

CASE 4.—Reported by von Guerard,[5] in 1899. Aged 40. A hydatidiform mole of two or three months' development was artificially removed. There was nothing unusual seen in the histologic structure of the mole. Four weeks later a slight vaginal hemorrhage appeared, and continued to increase in amount. A tumor the size of a hazelnut was removed from the anterior lip of the cervix, two and one-half months after the removal of the mole. It was from this tumor that the bleeding occurred.

Microscopic examination of the tumor showed large quantities of syncytium. Two years after the removal of the mole the patient was reported to be in good health.

CASE 5.—Reported by H. Schmit,[6] in 1900. Aged 36. V-para. Three abortions; one hydatidiform mole.

Three months after the removal of the mole a dark red tumor, the size of a hen's egg, appeared in the anterior wall of the vagina, and a second tumor, the size of a hazelnut, appeared in the posterior wall of the vagina. There was no bleeding from the uterus. Vaginal tumors removed and uterus scraped, with negative findings.

Microscopic examination of the vaginal tumors: In a blood coagulum of the large tumor were chorionic villi, surrounded by large numbers of Langhans' cells and syncytium. No villi were present in the small tumor, but the arrangement of the cellular structures was not unlike that of the large tumor.

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* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

1. Th. Langhans: Syncytium und Zellschicht. Placentarreste nach Aborten. Chorioepitheliom. Hydatidenmole. Hegar's Beiträge zur Geburtshilfe u. Gynäkol., 1901, vol. v, No. 1, p. 1.

2. L. Pick: Ueber Metastenbildung und Histologie der gutartigen Blasenmole. Verhandlungen der Gesellschaft Deutscher Naturforscher u. Aerzte in Braunschweig, 1897, vol. II, No. 2, p. 111; also see Von der gut. und bösartigen Blasenmole, Berliner klin. Woch., 1897, Nos. 49 u. 50, pp. 1069 and 1097.

3. Schmorl: Demonstration eines syncytialen Scheidentumors. Verhandlungen der Gesellschaft Deutscher Naturforscher u. Aerzte in Braunschweig, 1897, vol. II, No. 2, pp. 21 and 111.

4. Schlagenhaufer: Zwei Fälle von Tumoren des Chorioepithels. Wiener klin. Woch., 1899, No. 18, p. 486.

5. Von Guérard: Deciduoma malignum der Portio bei frei bleibendem Corpus. (a) Niederrhein.-Westf. Gesellsch. f. Geburtshilfe u. Gynäkologie, Elberfeld, 11. vi. 1899. Referat: Monatschr. f. Geburtshilfe u. Gynäkol., 1899, vol. x, p. 239. (b) Versamml. Deutscher Naturforscher und Aerzte in München., 1899. Referat: Münchener med. Woch., 1899, No. 43, p. 1440.

6. H. Schmit: Zur Casuistik der chorioepithelialen Scheidentumoren, Centralbl. f. Gynäkologie, 1900, No. 47, p. 1257.

One and a half years after the removal of the vaginal tumors the patient was reported well.

CASE 6.—Reported by Fiedler,[7] in 1900. (Schmorl's[8] second observation.) Aged 35. II-para. Severe hemorrhage occurred two months after a normal labor. Eight months later there developed severe abdominal pains and some swelling of the abdomen. Then followed vomiting, anorexia, and within a month (eleven months after labor) death occurred.

Postmortem examination revealed a soft dark red nodule, the size of a cherry stone, on the posterior wall of the fundus. Cysts the size of a child's head were in the ovaries; the tubes were normal. A soft reddish-gray tumor, the size of a child's head, was found in the liver. Similar but smaller growths were in the kidney, suprarenal glands and retroperitoneal lymph glands.

Microscopic examination: These tumors were largely composed of syncytium and blood coagulum. In the uterus was a decidua, 3 cm. thick.

CASE 7.—Reported by A. O. Lindfors,[9] in 1901. Aged 22. I-para; one abortion. Three weeks after labor there occurred a severe hemorrhage from the vagina, and a small tumor was found at the introitus vaginæ. In five weeks this tumor was the size of a cherry. Three weeks later a tumor, the size of a walnut, appeared above the urethra. It was pedunculated, dark red, and appeared to be composed of a blood coagulum. Scrapings from the uterus presented a normal mucosa.

Microscopic examination: The tumors contained large numbers of Langhans' cells and syncytium, which invaded the blood vessels of the vaginal mucosa. There were no villi. Nine months after the child-birth, or two months after the removal of the vaginal tumor, the patient succumbed to what was diagnosed as influenza, with an exudative pleurisy. Two hundred c.c. of bloody fluid were aspirated from the pleural cavity two days before death.

Postmortem examination: In the left lung was a large chorio-epithelioma, and smaller tumors of similar structure were found in the right lung, kidneys, brain, spleen, liver and intestine. The histologic structure resembled a typical chorio-epithelioma. Uterus and its appendages were free from tumor growths, as was also the vaginal scar.

CASE 8.—Reported by Schmit,[10] in 1901. Aged 41. 0-para; two abortions. Last abortion was immediately followed by hemorrhage, which was checked by scraping away some retained placental tissue. Seven weeks later a tumor appeared in the vault of the vagina, which bled so freely that it required tamponing. This tumor was soft, of a bluish color, and the size of a hazelnut. No hemorrhage came from the uterus. Microscopic examination of the excised tumor revealed a large blood coagulum, within which were hydropic chorionic villi and a typical grouping of Langhans' cells and syncytium. Scrapings from the uterus showed normal mucosa. Eight months after operation patient was reported in good health.

CASE 9.—Reported by Marchand,[11] in 1901. One month after the artificial removal of a hydatidiform mole, brain symptoms developed, and death came speedily.

Postmortem examination revealed a malignant chorio-epithelioma in the right cerebrum; also numerous nodules in the lung and left kidney. The uterus was somewhat enlarged; there was a decided decidual formation in the uterus.

CASE 10.—Reported by Holzapfel,[12] in 1901. Aged 37. Three years after an abortion a vaginal tumor appeared, which bled freely. The uterus was slightly enlarged. No blood came from the uterus. The vaginal tumor was excised and the uterus removed.

In the posterior wall of the uterus was a tumor, not connected with the mucosa. A third growth, the size of a walnut, was removed from a point above the urethra. The three growths presented the microscopic picture of a typical chorio-epithelioma. In the uterus was a decidual formation. Recovery followed.

CASE 11.—Reported by Pick[13] and Th. Landau. Aged 20. Not married. An abortion occurred in the third month. Shortly afterward hemorrhage came from the vagina and lungs. The vaginal hemorrhage was seen to come from two small ulcerated nodules in the vaginal wall. These were excised, and their base curetted. The uterus was also scraped, with negative findings.

Microscopic examination of the excised nodules showed the presence of a few villi and a typical formation of a chorio-epithelioma. Hemorrhage ceased from the vagina and lungs. Seven months later she again aborted in the sixth week of pregnancy, and at the time of making the report she was three months pregnant. The author was of the opinion that the spitting of blood was due to a chorio-epitheliomatous growth in the lungs, which apparently healed.

CASE 12.—Reported by Wehle,[14] in 1901. Aged 46. VII-para. Six months after the last normal child-birth a tumor appeared on the right labium. This was excised, and recurred in eight days, growing to the size of a mandarin. Death resulted in five weeks. The growth was a typical chorio-epithelioma.

CASE 13.—Reported by Wehle,[14] in 1901. Aged 39. VI-para. Five weeks after the last labor there appeared a mucosanguineous discharge from the vagina. On examination there was found a tumor the size of a large orange on the posterior wall of the vagina. This was removed by curette and cautery. Ten days later the tumor recurred, when further surgical intervention was impossible. Death soon followed.

Microscopic examination: Typical chorio-epithelioma.

CASE 14.—Reported by H. Peters,[15] in 1902. Aged 30. A normal labor was followed by a period of amenorrhea, lasting from March to June. In June and July there were irregular hemorrhages. From July, 1900, to March, 1901, menses were again suspended. At this time a hydatidiform mole was expelled. Three days later bleeding recurred, and lasted six weeks. A tumor, the size of a pigeon's egg, was found in the vagina. It was bleeding profusely. The surface was ulcerated. The uterus was found normal, after an exploratory curettage. The vaginal tumor was removed, and healing was perfect. Oct. 20, 1901, a second tumor appeared near the cicatrix in the vagina, and grew rapidly to the size of a pigeon's egg. Death followed three days after the appearance of the second vaginal tumor, preceded by paralysis of left leg and forearm, and asphyxia. The vaginal tumor was composed of a typical chorio-epithelioma. There was no postmortem examination, but doubtless there were metastatic formations in the lungs and brain.

CASE 15.—Reported by Hugo Hübl,[16] in 1902. Aged 36. VII-para. Four normal labors; one abortion at third month.

7. O. Fiedler: Beitrag zur Kenntnis der syncytialen Tumoren. Dissert., Kiel, 1900.

8. Schmorl: Diskussion zu Albert's Vortrag über Chorioepitheliom. Gynäkol. Gesellsch. zu Dresden, vol. xvii, 1900; Centralbl. f. Gynäkol., 1900, No. 49, p. 1329.

9. A. O. Lindfors och A. Vestberg: Det vidare förloppet och den slutliga utganger af ett förut beskrifvet fall af syncytioma (chorioepithelioma) malignum vaginæ, Upsala Läkareföreningt Förhandl, vol. vi, No. 8, 1901. Ueber den weiteren Verlauf und Ausgang meines Falles von "Syncytioma malignum vaginæ," nebst Obduktionsbefund. Vorläufige Mitteilung, Centralbl. f. Gynäkologie, 1901, No. 21, p. 557.

10. H. Schmit: Ein neuer Fall von Primärem Chorioepitheliom der Scheide, Centralbl. f. Gynäkologie, 1901, No. 49, p. 1350; also see Ueber malignes Chorioepitheliom der Scheide bei gesundem Uterus, Wiener klin. Woch., 1901, No. 44, p. 1077.

11. Marchand: Demonstration zweier Fälle von malignem Chorioepitheliom, Medizin. Gesellschaft zu Leipzig, 2. vii, 1901; Münchener med. Woch., 1901, No. 32, p. 1303.

12. Holzapfel: Fall von Chorioepithelioma malignum. (a) Physiol. Verein in Kiel, 10. vi, 1901; Ref.: Münchener med. Woch., 1901, No. 39, p. 1550. (b) 73. Versamml. Deutscher Naturforscher u. Aerzte in Hamburg 1901; Ref.: Centralbl. f. Gynäkol., 1901, No. 41, p. 1193.

13. L. Pick: Zur Kenntnis der Teratome; blasenmolenartige Wucherung in einer "Dermoidcyste" des Eierstockes, Berliner klin. Woch., 1902, No. 51, p. 1189.

14. Wehle: Diskussion im Anschlub an den Vortrag von Buschbeck, "Ueber einen Fall von Syncytiom," in der Gynäkol., Gesellschaft zu Dresden am 21 Febr., 1901; Referat: Centralbl. f. Gynäkologie, 1901, No. 52, p. 1429.

15. H. Peters: Zur Lehre vom primären Chorioepitheliom der Scheide nebst einem Falle von Recidiv nach Exstirpation des Scheidenknotens. Centralbl. f. Gynäkologie, 1902, No. 29, p. 769.

16. H. Hübl: Ueber das Chorioepitheliom in der Vagina bei sonst gesundem Genitale, Wien, 1903 (November, 1902).

and one hydatidiform mole. The last pregnancy terminated at the seventh month. Seven weeks later there was a vaginal hemorrhage, which rendered the patient very anemic in a few days. A tumor was then found in the posterior wall of the vagina, the size of a large nut, with an ulcerated surface. Scrapings from the uterus showed negative findings.

The vaginal tumor was extirpated and presented a typical chorio-epithelioma. Twenty days later it returned in the posterior wall of the vagina, to be shortly followed by the appearance of several similar growths in the vagina. Death occurred five months after the miscarriage, or thirteen weeks after the appearance of the vaginal tumor.

Postmortem examination: Secondary growths were found in the liver, lungs, base of bladder and ovary. All the tumors were identical in their histologic structure.

Case 16.—Reported by Senarcleus, in 1902. Aged 38. I-para. In 1898 she had an early abortion. In November, 1901, there appeared a foul-smelling, bloody discharge from the vagina, together with severe abdominal pains. In February, 1902, an abdominal tumor was recognized and diagnosed as a swelling of the right adnexa.

Death occurred March 9, 1902, shortly after an abdominal section.

Postmortem examination: Multiple tumor growths were found in the lung, anterior mediastinum, the wall of the right ventricle of the heart, thyroid and suprarenal glands, and kidneys. The fallopian tubes, ovaries and uterus were negative.

Microscopic examination: An atypical chorio-epitheliomatous formation was found in all of these growths. Senarcleus was of the opinion that there had existed a tubal pregnancy.

Case 17.—Reported by Busse,[17] in 1902. Aged 40. Patient entered the hospital July 2, 1902, with hemiplegia of the right side. Postmortem examination revealed chorio-epitheliomatous growths in the lungs, liver, kidney, pia mater and intestine. The uterus and adnexa were negative. The primary growth was not recognized.

Case 18.—Reported by Moltrecht,[18] in 1902. An incomplete abortion was followed by curettage. There was no evidence of malignancy in the scrapings. Four months later a bleeding tumor was discovered on the posterior wall of the vagina. The uterus, adnexa and greater portion of the vagina were removed. The uterus and adnexa were normal.

Microscopic examination of the vaginal tumor showed a typical chorio-epithelioma. Recovery followed.

Case 19.—Reported by Davis and Harris,[19] in 1900. Aged 40. XIV-para. Uncontrollable vomiting occurred in the second month of her fifteenth pregnancy. Pregnancy was terminated and death soon followed.

Postmortem examination: Nine tumors were found in various portions of the brain; also similar growths in both lungs, left kidney, liver and thyroid gland. The tumor in the kidney was thought to be primary. The uterus and adnexa were negative.

Microscopic examination showed a typical chorio-epithelioma.

Case 20.—Reported by G. Schmauch,[20] 1903. Aged 25. IV-para. Labors normal. Last birth Aug. 20, 1901. Entered clinic with severe postpartum hemorrhage. Placenta removed and reported normal; hemorrhage stopped, and patient apparently recovered. Three weeks later severe hemorrhage came from vagina, which was seen to come from a tumor in the vaginal wall; this was excised and the bleeding stopped for three weeks. The hemorrhage returned, and a second tumor was found in the vagina. This was cauterized, and the uterus curetted. The bleeding was checked for a short time, and shortly returned, with vomiting. Four or five vaginal tumors were successively excised to control the hemorrhage. The pelvic connective tissue was invaded, and this, together with the anemic condition of the patient, made a radical operation impossible. Death followed ten weeks after the normal birth.

Postmortem examination: Typical chorio-epithelioma malignum of the vagina (primary), metastatic growths of similar structure in kidney, lungs, spleen, brain and pelvic connective tissue.

In addition to the previously reported 20 cases, I have the privilege of reporting a case, through the kindness of the operator, Dr. Karl Sandberg, Chicago:

Case 21.—Mrs. M. L., aged 50. Danish; housewife. Father died at 84; mother at 80 years of age. No tuberculosis or malignancy in the family. Patient was never sick except from measles and whooping cough. Menstruation always regular in time and amount. Has had five children, the oldest 19 years and the youngest 5 years and 8 months of age. Labors not difficult. One miscarriage eleven years ago. No unusual hemorrhage, pain or fever followed the child-births or miscarriage. Has not been pregnant to her knowledge since the last child-birth, five years and eight months ago. She nursed this child two years, during which time, and the year following, she did not menstruate. In all, there was a period of amenorrhea lasting three years. The menses then appeared, were one week in duration, unusually copious and irregular. There was an associated backache and pain in the right side.

Present Illness.—During the last fifteen months the pain has steadily increased, the flow has been gradually prolonged and increased in quantity, and intermenstrual hemorrhages were noted. These were brought on by physical exertion. An offensive leucorrheal discharge also made its appearance. The flow appeared daily during the two months preceding the operation.

Examination.—Just prior to the operation the patient was found to be anemic and emaciated. A sanguinopurulent discharge flowed from the vagina. There was a nodular tumor the size of a hen's egg on the posterior wall of the vagina. It was of a dark red color. The overlying mucous membrane was intact and apparently not adherent to the tumor mass over the greater part of its circumference. It was of elastic consistency, and rather movable.

A bloody purulent discharge exuded from the cervix. There was nothing unusual in the appearance of the vaginal portion of the cervix. The body of the uterus was about the size of a three months' pregnant uterus, and inclined to the right side. Its mobility was restricted. The surface was nodular, the consistency elastic, and there was tenderness on pressure. The findings in the heart and lungs were negative.

Operation.—Dec. 15, 1903. A complete abdominal hysterectomy was performed, after separating extensive adhesions involving the body of the uterus. The patient made an uneventful recovery from the abdominal operation. Jan. 11, 1904, the vaginal tumor, which had continued to bleed, was removed.

The patient left the hospital January 31, and has continued to improve from that time to the present. A thorough physical examination, made April 15, four months after the operation, and nineteen months from the onset of the symptoms, failed to reveal any evidence of recurrence.

Microscopic Examination.—The uterus measured 18 cm. in length, 12 cm. from horn to horn, and 8 cm. in its greatest anteroposterior diameter.

It was dark red in color; the consistency was firm and elastic, and its surface smooth, with the exception of several nodules on the fundus, ranging in size to that of a hazelnut. Both appendages presented a normal appearance. The left appendage was elevated about 3 cm. above the right.

On cross-section it was seen that in the fundus, and inclining to the left, was a tumor apparently composed of a firm coagulum of blood. This was sharply circumscribed, and about 6 cm. in diameter. The upper surface of this tumor was immediately covered by peritoneum. At the sides, and separat-

17. Busse: Ueber Deciduoma malignum, Vortrag im Griefswalder medizin. Verein. Sitzung bom, Aug. 2, 1902; Münchener med. Woch., 1902, No. 38, p. 1588; Deutsche med. Woch., 1902, Vereinsbeilage, No. 38, p. 289.

18. Moltrecht: Ueber Chorioepithelioma malignum bei gesundem Uterus Biolog. Abteil. des Aerztl. Vereins in Hamburg, 28, x, 1902; Münchener med. Woch., 1902, No. 48, p. 2028.

19. Davis and Harris: Syncytioma Malignum and Ectopic Gestation, Causing Pernicious Nausea, American Journal of Obstetrics, etc., July, 1900, vol. xlii, p. 1.

20. Schmauch: Das Syncytioma malignum vaginale p. p. matur. ohne Geschwulstbildung im Uterus und seine Aetiologie (Zeitschrift für Geburtshilfe und Gynäkologie, vol. xlix, No. 3).

ing the mass from the uterine cavity, was the musculature of the uterus, which ranged from 1 mm. to 1 cm. in thickness. There was no evident connection between the tumor and the uterine cavity.

Macroscopic Examination.—We find in the center of a large coagulum of blood, varying amounts of syncytium and Langhans'[4] cells, not unlike a typical primary chorio-epithelioma of the placental site. In a portion of the circumference of the tumor the serous covering of the uterus directly overlays the blood mass. In three places no serous covering was found, and the blood fibrin with invading syncytial cells presented at the surface.

The lateral muscular walls of the uterus became more and more in evidence from the fundus to about the level of the internal os, and from this point downward there was the usual structure of the cervix, without the presence of invading cell elements. Higher up in the musculature of the uterine body wandering syncytial cells were everywhere in evidence. Between the uterine cavity and the tumor there was not only an intact mucosa, but a distinct muscular wall containing numerous wandering syncytial cells. It is apparent, not only to the unaided eye, but under the microsope, that the growth had no direct connection with the endometrium, nor is it possible to account for its primary origin in the placental site.

The walls of blood vessels in the musculature were seen to be invaded by syncytium and Langhans' cells. No villi were found. In the blood coagulum were numerous large, irregular, branching, multinuclear masses of syncytium. Vacuoles were distributed in these masses, as well as in the isolated smaller syncytial elements, the so-called "wandering cells." In isolated fields and irregularly distributed throughout the tumor were the characteristic small polyhedric cells of Langhans.

Without entering into an extended description of the histology of the growth, suffice it to say that it corresponds with the "typical" chorio-epithelioma of Marchand.[11]

The metastatic growth in the vagina bore the same typical characteristics. There were negative findings in the tubes and ovaries.

In the above recorded 21 cases unmistakable chorio-epitheliomatous tumors have been observed in locations remote from the placental site of the uterus and fallopian tubes. In no case has it been possible to trace a direct anatomic connection between the placental site and the primary tumor.

In nearly all cases it has been possible to trace a direct clinical relation between pregnancy and the tumor formation. These tumors have arisen during the course of pregnancy, at varying intervals after the completion of normal pregnancy, following complete and incomplete abortions, while hydatidiform moles were *in situ*, and a variable time after their expulsion. In no instance has such a growth been recognized in a nullipara, though in one instance the appearance of the tumor followed the establishment of the menopause.

In primary chorio-epithelioma of the placental site the vagina is most often the seat of secondary invasion by metastasis. It is also true that primary extra-uterine chorio-epithelioma arises with greatest frequency in the vaginal walls. This is an exception to the rule that tissues which are a common seat of primary malignant growths are seldom a seat of secondary invasion by these growths. The following presents the topographical distribution of the chorio-epitheliomata in regions not connected with the placental site: Vagina, 14; lungs, 8; liver, 5; brain, 5; kidney, 5; uterine musculature, 3; intestine, 3, and 1 each in spleen, thyroid, suprarenal gland, retroperitoneal lymph glands, heart muscle, ovary, bladder, labium and mediastinum.

It was not always possible to identify the primary growth apart from the secondary metastatic growths. The vagina was believed to be the primary seat in eleven cases, the uterine musculature in three cases, the cervix, brain, kidney and labium each in one case. In the remaining three cases it was not possible to identify the primary growth. The size was not found to be a safe guide in judging the priority of the growths. For example, in the case reported by Fiedler,[7] the primary growth in the uterine musculature was the size of a cherry stone, while in the liver was a secondary growth the size of a child's head.

Undoubtedly small metastatic growths in various portions of the body are frequently overlooked, and subsequently disappear spontaneously. They are known to vary in size from that of a hazelnut to a child's head, and in number from one to a score or more. Multiple growths in the same organ or tissue have been repeatedly described, and in all cases there was an almost uniform appearance in the gross structure. In general, they have presented the macroscopic appearance of blood clots. As a rule, they were of firm consistency, bluish-red in color, and on cross-section presented a fibrinous-like character in the center of the blood coagulum.

In the vagina the overlying mucosa was frequently ulcerated, and through the defective covering blood escaped. Occasionally the hemorrhage was so great as to require tamponing or immediate operation.

In all cases of primary vaginal growths the hemorrhage was at first thought to come from the uterus, but direct inspection readily located the seat of hemorrhage in the vaginal tumor, and a subsequent exploratory curettage, with microscopic examination of the scrapings, excluded the presence of the growth in the uterus.

Krebs and E. Fränkel[21] reported cases in which no hemorrhage occurred.

A case of Brault's, reported as "sarcoma angioplastique," was doubtless a chorio-epithelioma malignum, primary outside of the placental site.

In the liver was a tumor the size of an orange, and presented the appearance of a large red blood clot. Smaller ones of similar structure were found in the stomach, lungs and lymph glands. No lesion was found in the uterus and adnexæ.

Histologically, the growth was composed of protoplasmic masses, which were rich in nuclei and very irregular in outline. These were vacuolated. Numerous smaller polyhedric cells, with single nuclei, resembling Langhans' cells, were intimately associated with the protoplasmic masses.

The decidual changes in the uterine mucosa in the cases of Schmorl,[3] Fiedler[7] and Holzapfel[12] are remarkable. The decidua was not unlike the decidua vera of normal pregnancy, and averaged ¾ cm. in thickness. We recognize here an analogy to the decidual formation of ectopic pregnancy.

HISTOGENESIS.

It is interesting to speculate on the genesis of these growths. We ask: Was the placental tissue malignant when *in utero*, and had metastatic invasion been instituted prior to a complete expulsion of the malignant placental tissue from the uterus? Can we conceive of a complete spontaneous expulsion of malignant placental tissue from the uterus, i. e., self-elimination of the original uterine tumor while the metastatic growths remain in distant portions of the body and continue to develop?

Is spontaneous involution of the original uterine

21. E. Fränkel (Breslau): Das Chorioepitheliom malignum (früher Deciduoma malignum). Sammlreferat. Deutsche med. Woch., 1899, No. 11, p. 177.

tumor possible? Is it possible that the primary growth at the placental site was removed by the curette or finger?

These are interesting and very important questions, which must remain for future investigations to answer.

It has been conclusively shown by Webster, Veit,[22] Pick and later observers that not only chorionic epithelium, but the entire villus as well, is carried to distant parts of the body through the blood stream, and this under perfectly normal conditions.

May these deported elements proliferate to form tumor growths which may be benign in one case, malignant in another, and leave the uterus free from tumor formation?

With our present knowledge of the pathology of the placenta, we can not solve these problems. Macroscopic and microscopic examinations of the expelled placenta, of hydatidiform mole and of scrapings from the placental site afford no information, because we can not distinguish a malignant from a benign growth of the epithelial elements found in these structures.

Neumann's statement that malignancy is recognized by the epithelial invasion of the stroma of the villus has been disproven.

The atypical growth of syncytium with large and richly chromatic nuclei has been regarded by Gottschalk and others as indicative of malignancy, but this, too, has been disproven.

The proliferation of Langhans' cells and their atypical distribution was thought by Voigt to suggest malignancy, but subsequent investigations fail to substantiate his views.

Primary chorio-epitheliomatous growths outside of the placental site have developed where macroscopic examinations of the expelled mole or placenta showed none of these features (Pick,[13] v. Guerard[5]).

The fact that syncytium under normal conditions is known to disappear spontaneously from uterine and other tissues leaves the question open as to the possibility of malignant chorio-epithelioma spontaneously disappearing from the uterus.

Under perfectly normal conditions we see the syncytium rapidly proliferating, destroying tissues as it advances, burrowing into blood vessels and carried to distant portions of the body. For all we are now able to judge, the difference in the behavior of normal syncytium and the malignant type is one of degree in its proliferating tendencies. It is probable, as Risel has suggested, that the difference between the benign and the malignant syncytial growth does not lie in these elements, but is dependent on the peculiar resistance of the tissues invaded. We find every possible gradation between the normal placenta, the hydatidiform mole and chorio-epithelioma malignum, and a transition from one to the other in the order named is possible.

Permanent healing has followed the removal of the growths, and even the partial removal, as in the case of Fleischmann,[23] in which a secondary vaginal tumor was removed, and only a portion of the primary uterine tumor was removed by the curette. Yet not only did the uterine tumor completely disappear, but there was subsequent child-bearing and complete recovery.

The microscopic examinations of the tissues scraped from the uterus showed what appeared to be a typical chorio-epithelioma malignum.

We, therefore, are forced to the conclusion that we have no way of judging the malignancy of these growths save by the subsequent course of the case.

Schlagenhaufer[24] and, about the same time, but independently, Wlassow[25] observed chorio-epitheliomatous growths in the testicle identical to those found in the female. These growths are regarded by the above observers to have the same histogenesis, i. e., that they arise from embryonic elements of the fetal ectoderm and contain both syncytium and Langhans' cells. Wlassow examined twelve teratomata of the testicle and found this peculiar cell structure in three.

L. Pick[13] has since found a similar structure in ovarian tissue. Risel, Schmorl[26] and Steinhaus[27] have made further observations in cases of chorio-epithelioma malignum of the testicle. It is possible, though not yet proven, that such tumors may occur elsewhere in the male.

Breus (1878) recorded a testicular tumor with a secondary tumor in the heart, which Schlagenhaufer regarded as a malignant hydatidiform mole in the male, and Breus later accepted his views as highly probable. In view of this case and the other testicular tumors reported by Schlagenhaufer,[24] Risel, Schmorl,[26] Wlassow[25] and Steinhaus,[27] the question naturally arises, what light does this throw on the origin of teratomata, and on the chorio-epitheliomata in woman?[28] Certainly it establishes the theory of the fetal origin of these growths, as opposed to the theory of maternal origin. Furthermore, the epithelial covering of the villi must be regarded as being epiblastic in origin.

It is probable that in the antenatal period, when the fetus is little more than a segmentation sphere, one or more polar bodies or blastomeres become displaced and incorporated in the structures which go to make the tes-

22. J. Veit: Das Decidуoma malignum, Handbuch der Gynäkologie, herausgegeben von Veit, vol. iii, No. 2, Wiesbaden, 1899, p. 533.

23. C. Fleischmann: Ueber eine seltene vom Typus abweichende Form des Chorioepithelioms mit ungewöhnlichem Verlaufe. Monatschr. f. Geburtschilfe und Gynäkol., 1903, vol. xvii, No. 4, p. 415.

24. Fr. Schlagenhaufer: Ueber das Vorkommen chorioepitheliom- und traubenmolenartiger Wucherungen in Teratomen, Wiener klin. Woch., 1902, Nos. 22 and 23, pp. 571 and 604.

25. K. Wlassow: Ueber die Patho- und Histogenese des sogen, "Sarcôme angioplastique." (a) Medizinskoje Obosrenje, No. 16, 1902 (Russisch). (b) Virchow's Archiv, vol. clxix, No. 2, p. 220.

26. Schmorl: Diskussion zu Schlagenhaufer's Vortrag "Ueber das Vorkommen chorioepitheliom- und blasenmolenartigen Wucherungen in Teratomen," Verhandlungen der Deutschen Patholog. Gesellschaft V. Tagung zu Karlsbad, 1902, p. 211.

27. J. Steinhaus. Ueber chorioepitheliomartige Wucherungen beim Manne, Wiener med. Woch., 1902, No. 17, p. 793.

28. Other references may be consulted as follows: O. Schmidt: Ueber einen Fall von Chorioepithelioma malignum, Centralbl. f. Gynäkologie, 1902, No. 42, p. 1100. Bostroem: Diskussion zum Vortrage von Schlagenhaufer, "Ueber das Vorkommen chorioepitheliom- und blasenmolenartiger Wucherungen in Teratomen," 74. Versammlung Deutscher Naturforscher u. Aertze in Karlsbad, 1902; Verhandlungen der Deutschen Patholog. Gesellschaft V. Tagung zu Karlsbad, 1902, p. 212. W. P. Zagorjanski-Kissel: Ueber das primäre Chorioepitheliom auberhalb des Bereichs der Elansiedlung. Archiv f. Gynäkologie, vol. xlxvii, No. 2, 1902, p. 326. H. Schmit: Zur Kasuistik der Chorioepitheliome. Geburtschilf.-gynäkol. Gesellsch. zu Wien, 19, xi, 1901; Ref., Centralbl. f. Gynäkol., 1902, No. 8, p. 212. Kleinhans: Zwei Fälle von Chorioepitheliom, 74, Versamml. Deutscher Naturforscher u. Aerzte in Karlsbad, 1902; Ref., Centralbl. f. Gynäkol., 1902, No. 43, p. 1148. Palmer Findley: Hydatidiform Mole; with a Report of Two Cases and Clinical Deductions from 210 Reported Cases, American Journal of the Medical Sciences, 1903, vol. cxxv, No. 3, p. 486. Hitschmann: Demonstration eines Chorioepithelioms des Uterus, Geburtshilf. Gynäkol. Gesellschaft in Wien, 12, ii, 1901; Referat.: Centralbl. f. Gynäkol., 1901, No. 28, p. 820. P. Kworostansky: Syncytioma malignum und sein Zusammenhand mit der Blasenmole, Archiv f. Gynäkologie, 1900, vol. lxii, No. 1, p. 69. Pierce: Chorioenepithelioma Malignum, American Journal of Obstetrics, etc., March, 1902, vol. xlv, p. 339. W. Poten and W. Vassmer: Beginnendes Syncytiom mit Metastasen, beobachtet bei Blasenmolenschwangerschaft. Archiv f. Gynäkologie, 1900, vol. lxi, No. 2, p. 205. A. O. Lindfors: Till frägon om ovarialtumorer upkomme after graviditet och med structur af syncytioma malignum utan dock någon svulstbildning förefinnes i uterus, Upsala Läkareföreningt Förhandlingar, N. F., vol. vi, No. 4, p. 177; Referat.: Centralbl. f. Gynäkologie, 1901, No. 19, p. 501.

ticle, and later develop into structures comprising all three layers of the blastoderm.

Why a complete embryo is not developed, and why the growth at times becomes malignant, are unsolved problems.

DIAGNOSIS.

From a study of these cases it is observed that the clinical diagnosis of primary chorio-epithelioma has only been made in the cases where the lesion could be directly inspected, i.e., in the vagina, labium and cervix. They were recognized by their characteristic rounded shape and bluish color, their tendency to bleed freely, and by the absence of uterine hemorrhage, together with negative findings in the uterus after exploring with the finger and curette.

The clinical diagnosis was at all times confirmed by microscopic examinations of portions of excised or curetted tissue. Without the microscope a positive diagnosis is not possible.

Tumors lying in hidden portions of the body, e. g., kidney, liver and lung, were not diagnosed with certainty without a postmortem examination.

Where the case did not end fatally, it was not possible to say that the growth was malignant, from the fact that the macroscopic and microscopic findings in these growths were in no way diagnostic of malignancy.

The ages at the time of operation were from 20 to 50 years. Twelve of the seventeen cases in which the age was recorded occurred between 35 and 41 years of age.

The following table presents the nature of the last pregnancy and the time of appearance of the symptoms and primary tumor, in relation to the last pregnancy:

Case 1.—Hydatidiform mole *in utero*.
Case 2.—Eighteen weeks after normal labor.
Case 3.—Hemorrhage from vagina two or three months after an incomplete abortion. Tumor in vagina discovered ten months later.
Case 4.—Four weeks after artificial removal of hydatidiform mole.
Case 5.—Three months after artificial removal of hydatidiform mole.
Case 6.—Two months after normal labor.
Case 7.—Three weeks after normal labor.
Case 8.—Seven weeks after incomplete abortion.
Case 9.—One month after artificial removal of hydatidiform mole.
Case 10.—Three years after normal labor.
Case 11.—Shortly after abortion.
Case 12.—Six months after normal labor.
Case 13.—Five weeks after normal labor.
Case 14.—Few days after expulsion of hydatidiform mole.
Case 15.—Seven weeks after miscarriage at seventh month.
Case 16.—About three years after an early abortion.
Case 17.—Not known.
Case 18.—Four months after incomplete abortion.
Case 19.—Two months fetus *in utero*.
Case 20.—Three weeks after normal labor.
Case 21.—Five years and eight months after normal labor.
Time of appearance of tumor not known; probably four years and five months after labor.

We find in this number that in one case a hydatidiform mole was *in utero* at the time of appearance of the symptoms and primary growth. In another case there was a two months' fetus *in utero*.. In three cases the tumor followed incomplete abortions; in three others the abortions were complete, and in seven cases there were normal labors.

In all cases where there were vaginal or cervical tumors, hemorrhage was the symptom which led to the detection of the growth. In exceptional cases a foul-smelling vaginal discharge followed the appearance of the hemorrhage.

From the fact that these growths are so frequently located in the vagina, and that hemorrhage is an early and constant symptom, our suspicions should always be aroused by the occurrence of bleeding from the vagina during the course of pregnancy, after the expulsion of a hydatidiform mole, an abortion or labor.

If, on inspection, such a tumor is found, it should be excised, and if on microscopic examination chorionic epithelium is found, an exploratory curettage of the uterus should be made. However, we have learned that we can not rely on the microscopic findings in the scrapings in determining the malignancy; hence, because of our present limitations, it would appear to be advisable to make a complete extirpation of the uterus when syncytial tissue is found in the scrapings. The cases which have recovered after the removal of the vaginal growth, and leaving the uterus, do not, in our present knowledge of these cases, justify us in leaving the uterus unless by an exploratory curettage the uterus is found free of all chorionic epithelium.

TREATMENT.

In view of our inability to accurately judge the character of these growths, a radical procedure of treatment should always be adopted. Vaginal growths should be excised. When the cervix is involved, a high amputation of the cervix or vaginal hysterectomy is demanded. Where, in the presence of a characteristic vaginal growth, nodules can be palpated on the surface of the uterus, or where the form of the uterus is irregular for an unaccountable reason, the possibility of a primary growth in the uterine musculature must be considered, and, though the uterine scrapings are negative, it would seem that a hysterectomy would be justifiable in the light of recorded cases in which the growths were primary in the uterine musculature.

If a characteristic chorio-epithelioma appears in the cervix or vagina during pregnancy, not only should the extrauterine growth be removed, but a total hysterectomy should be done.

It has been demonstrated that the emptying of the uterus and the examination of the fetal tissue will afford no reliable information as to the presence or absence of a malignant growth. An immediate removal of all tissues under question would, therefore, appear to be the only safe procedure.

From the fact that metastatic growths have been known to disappear spontaneously, the primary growth should be removed if possible, even in the presence of metastatic growths too remote for surgical interference. This is done in the hope that the metastatic growths may disappear spontaneously.

PROGNOSIS.

In view of the uncertainty as to the existence of metastatic growths and of the malignant intent of the growth, it is at all times necessary to give a guarded prognosis. Inasmuch as it is impossible to say that the growth is benign, and since metastatic growths may not make their appearance for an indefinite time, these cases demand careful attention for many years.

Doubtless the favorable prognosis of primary vaginal tumors, as compared with the primary growths located in less accessible regions, is accounted for by early recognition and prompt interference.

Of the twenty-one cases, twelve died and nine recovered after the removal of primary growths in the vagina, labium and cervix. In one instance recovery followed the removal of a primary growth in the vagina, and a probable secondary growth in the lung. In the fatal cases, death intervened in from a few days to eight months after the removal of the vaginal growth, and in all instances death appeared to be due to metastatic invasion of remote structures.

RESUME.

1. Twenty-one cases, including the above-recorded case, of unmistakable chorio-epitheliomatous tumors, have been observed in locations remote from the placental site. No direct anatomic connection between the tumor and the placental site was demonstrable.

2. These tumors have arisen while a fetus or hydatidiform mole was *in situ*, and at varying intervals of days and years following abortions, labors and the expulsion of hydatidiform moles.

3. The vagina was believed to be the primary seat of the tumor in 50 per cent. of the cases; the uterine musculature in 15 per cent.; the cervix, brain, kidney and labium, each 5 per cent. It was not always possible to identify the primary growth.

4. In all cases the growth presented the appearance of blood coagula, and were only identified with certainty by the aid of the microscope.

5. Nothing definite is known of the histogenesis. The degree of resistance of the invaded tissues probably determines the malignancy of these growths.

6. Microscopic examination of the tumor will demonstrate the presence of chorionic tissue, but will determine nothing as to the malignancy of the growth.

7. In primary vaginal and cervical growths it has been possible to make a highly probable diagnosis by a consideration of the history of the previous pregnancy, the occurrence of hemorrhage from the vagina, and by inspection of the tumor. The positive diagnosis was reserved for the microscope.

8. Sixty per cent. of the cases occurred between the ages of 30 and 41. The earliest was at 20 years of age, the oldest at 50.

9. Hemorrhage is the one constant symptom in the growths of the vagina and cervix, and should always arouse suspicion when occurring weeks, months or years after the termination of pregnancy, abortion or hydatidiform mole. The possibility of these growths occurring during the course of pregnancy must be borne in mind.

10. After the recognition of the primary growth outside of the placental site, an exploratory curettage is done and the scrapings examined by the microscope. If syncytial tissue is recognized, the uterus should be removed. Inasmuch as we are unable to judge the malignancy of the scrapings from the uterus in such cases, it would seem wise to anticipate the existence of a malignant growth by removing the uterus.

11. The malignancy of these growths can only be determined by the remote results. If the individual makes a permanent recovery after the removal of the primary growth, we are at a loss to know whether the growth was malignant.

12. It is necessary to give a guarded prognosis in all cases, because of the uncertainty as to the existence of metastatic growths, and the inability to differentiate a benign from a malignant growth.

100 State Street.

Health of Pilots.—The *Australasian Medical Gazette* states that the following regulation has been gazetted under the navigation act in New South Wales:

No person appointed as first class pilot shall be deemed eligible to continue to hold such position and discharge the duties thereof unless, in addition to compliance with other regulations relating to licensed pilots, at least once in each year he attends before a medical officer appointed by the treasurer, and obtains a certificate under his hand that he is in good health and not affected with any bodily or mental complaint or infirmity rendering him unfit to perform the duties of a pilot, particularly as to sight (vision and color), hearing and speech.

We understand that similar action is also being taken in Victoria.

THE DOWNES ELECTROTHERMIC CLAMPS.

FURTHER EXPERIENCE IN THEIR USE IN THE TREATMENT OF CANCER OF THE UTERUS.*

CHARLES P. NOBLE, M.D.
Surgeon-in-Chief Kensington Hospital for Women.
PHILADELPHIA.

The treatment of cancer of the uterus is one of the important questions of the day. Without treatment the disease is a hopeless one and usually causes death within two or three years.

The accepted treatment for cancer of the uterus at the present time is hysterectomy; and, without entering into details, it may be stated that cases thus operated on before the disease has apparently invaded the parametria have the following results: The primary mortality of the operation is from 5 to 10 per cent. Adenocarcinoma of the corpus uteri is cured by hysterectomy in about 75 per cent. of the cases. Epithelioma of the cervix uteri is cured in about 10 per cent. of the cases. Less than 10 per cent. of cases of adenocarcinoma of the cervix uteri are cured by hysterectomy.

Perhaps these figures would be more accurate if it were stated that this is the general average rather than the results secured by early operation. The results should be somewhat better in selected cases. My own results correspond with these figures. Taking all the cases of cancer of the uterus on which I have operated, about 20 per cent. of those subjected to hysterectomy have remained free from recurrence at the end of five years. This includes all three classes of cancer of the uterus, and the apparently high percentage of cures is due to the fact that the general average is raised by the proportion of cancers of the corpus uteri.

The alternative operation which has been practiced is amputation of the cervix in cases of cancer of the cervix uteri. The amputation has been practiced by removing the cervix with the knife and scissors, and also with the galvanocautery. The names of Sims and Schroeder are intimately associated with the first operation, and the name of Byrne with the second.

So far as statistics can determine the results of operations there is not much to choose between the results of amputation of the cervix and hysterectomy. As a matter of fact the results named by Byrne are better than those secured by hysterectomy. Every one, however, who has had large experience in dealing with statistical statements knows the difficulty of presenting statistics which will tell absolutely the truth about the subject.

The general results of operation for cancer in all portions of the body make it appear reasonable that hysterectomy should give better results than amputation of the cervix, because it is well known that, as a rule, cancer has invaded the tissues more widely than is apparent on clinical examination; and, therefore, in spite of the statistical evidence, most surgeons are convinced that hysterectomy should have the preference over amputation of the cervix in all cases in which hysterectomy is feasible. Nevertheless, it is true that no one has presented statistics so good as those of John Byrne of Brooklyn. This being true, when Dr. A. J. Downes of Philadelphia offered the profession a practical electrothermic clamp with which hysterectomy for cancer can be done without increasing the primary mortality of

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee. Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

HYSTERECTOMIES WITH "DOWNES CLAMPS."

Number.	Name and Date.	Married, Single or Widow.	Age.	Children.	Miscarriage.	Diagnosis.	Condition of Patient Before Operation.	Operation.	Time.	Drainage.	Course.	Temp.	Subsequent History.
1	Mrs. H. 9-27-02.	W.	58	5	0	Squamous carcinoma of cervix.	Utero-sacral ligaments invaded.	Celiotomy; pan-oöphorosalpingolysterectomy, combined method; clamps used first in vagina.	100	Gauze in vagina.		Febrile	Died about 10 months after operation from cancer.
2	Mrs. B. 10-3-02.	M.	50	3	0	Squamous carcinoma of cervix.	Parametria invaded.	Celiotomy; pan-oöphorosalpingolysterectomy, combined method; clamps not used first in vagina.	110	Gauze in vagina.		Febrile	Died 10 months after operation from cancer.
3	Mrs. B. 10-5-02.	M.	42	6	0	Epithelioma of cervix.	Extensive involvement of cervix.	Celiotomy; pan-oöphorosalpingolysterectomy.	65	Gauze in vagina.	Left lobar pneumonia.	Febrile	Unable to trace subsequent history.
4	Mrs. K. 10-23-02.	M.	35	2	0	Squamous carcinoma of cervix.		Celiotomy; pan-oöphorosalpingolysterectomy; uterus amputated above internal os; cervix removed from below.	115	None	Died.	Febrile	
5	Mrs. C. 10-27-02.	W.	43	10	0	Squamous carcinoma of cervix; uterosacral ligaments involved.	Utero-sacral ligaments invaded.	Celiotomy; pan-oöphorosalpingolysterectomy; uterus amputated; cervix removed from below.	80	Gauze in vagina.		Afebrile	Recurrence in scar in vagina, 9-11-03.
6	Mrs. McC. 3-7-03.	M.	52		2	Squamous carcinoma of cervix.	Nephritis; parametria invaded.	Celiotomy; pan-oöphorosalpingolysterectomy.	80	Gauze in vagina.	Ureterovag. fistula.	Febrile	Spontaneous healing in nine months—free from growth.
7	Mrs. K. 3-23-03.	M.	35	3	3	Squamous carcinoma of cervix.	Extensive involvement of cervix.	Celiotomy; pan-oöphorosalpingolysterectomy.	125	Gauze in vagina.	Vesicovag. fistula.	Febrile	Fistula still open. Family physician report recurrence.
8	Mrs. C. 4-22-03.	M.	31	0	1	Squamous carcinoma of cervix, early; right hydrosalpinx.	Prognosis doubtful. Utero-sacral space invaded. Prognosis doubtful.	Celiotomy; pan-oöphorosalpingolysterectomy.	120	Gauze in vagina.	Vesicovag. fistula.	Febrile	Fistula closed spontaneously a few weeks after operation.
9	Mrs. H. 11-6-03.	M.	44	3	0	Adenocarcinoma of cervix.	Parametria invaded; prognosis bad.	Celiotomy; pan-oöphorosalpingolysterectomy.	60	Gauze in vagina.	Ureterovag. fistula.	Febrile	Fistula apparently is closing; no involvement can be made out.
10	Mrs. L. 12-11-03.	M.	62	4		Adenocarcinoma of corpus uteri; intramural fibromyoma.	Parametria invaded; prognosis bad.	Celiotomy; pan-oöphorosalpingolysterectomy.	125	Gauze in vagina.	Ureterovag. fistula.	Febrile	Fistula closed spontaneously in 10 weeks. Died five months after operation.

the operation, it seemed to me a step in advance, and I was prepared to adopt this instrument for the treatment of cancer of the uterus, because it seemed to me that through the employment of this instrument we could secure the advantages of hysterectomy and also the advantages of the electrothermic cautery as employed by Byrne, and that, therefore, the results of hysterectomy performed by means of the electrothermic clamp should be still better than is true of hysterectomy performed in the usual manner, or the results secured by Byrne through amputation of the cervix with the galvanocautery knife together with the roasting of the adjacent parametrial tissues with the electrocautery.

At the meeting of the Southern Surgical and Gynecological Association in Cincinnati, Nov. 11, 1902,[1] I read a paper entitled "The Use of the Electric Cautery Clamp in the Treatment of Cancer of the Uterus." I reported four hysterectomies for cancer of the uterus. Three of the patients made typically good recoveries from the operation. The fourth case died mainly as the result of an accidental hemorrhage. I stated that this experience, while not large, was sufficient to convince me that the method has certain practical advantages. "It guards against oozing hemorrhage from numerous small vessels, which is so annoying in operations for cancer, and it leaves a dry field of operation to be buried under the peritoneal flaps. The special points in the method which appeal to me are: First, by its use less blood is lost during operation; second, the lymphatics are sealed up, thus lessening the risk of septic absorption and implantation of cancer; and third, more of the broad ligament is removed than by the usual operation. If the ligature is used, the needle must be passed to the uterine side of the ureter, and fear of including the ureter inevitably tends to make the ligature hug the uterus. Not only is this true, but the button which is left requires that the broad ligament tissues shall be cut directly against the cervix. With the cautery lamp, at least one-third of an inch of tissue is cooked outside of the uterus, and the tissues beyond are more or less heated. This is an absolute advantage, unless experience shows a certain percentage of ureteral fistulæ from cooking this structure."

I wish to present the additional cases operated on since that date, together with the present condition of the cases already reported and those operated on since the date of my last communication.

In justice to the method it should be stated that the ten cases operated on by means of the electrocautery clamp were, without exception, advanced, or, rather, unfavorable cases. A number of them would have been refused operation by the ordinary methods. In the first case the uterosacral ligaments were involved. In the second case the parametria were invaded. In the third and fourth cases the cancer of the cervix was extensive. In the fifth case the uterosacral ligaments were invaded. In the sixth case the parametria were invaded and the patient had also a chronic nephritis. In the seventh case there was extensive involvement of the cervix and the prognosis was doubtful. In the eighth case the uterovesical space was invaded and the prognosis was doubtful. In the ninth case the parametria were invaded and the prognosis was bad. In this case the disease was far advanced and operation would not have been undertaken by the ordinary methods. In the tenth case the parametria were invaded, the prognosis

1. Am. Gynecology, December, 1902.

was bad and the operation would not have been undertaken by the ordinary methods.

This analysis of the cases shows that the results secured in this series of ten cases should not be taken as typical nor as representing what can be secured by the method in selected cases.

In discussing the advantages and disadvantages of the method in my previous communication, I stated that in my judgment an objection to the method, theoretically, seemed to be that it might well happen that a larger percentage of fistulæ would follow the use of the electrothermic clamp than the usual methods of operation. My experience has borne out this theoretical consideration, because of the nine cases there have been three ureterovaginal, and two vesicovaginal fistulæ. In one case of ureterovaginal fistulæ there was a vesicovaginal fistula in addition.

I have had the remarkable experience that of the three ureterovaginal fistulæ, two have healed spontaneously and one gives every appearance of spontaneous closure.

The first ureterovaginal fistula closed nine months after the operation. The second ureterovaginal fistula gives every appearance of closure five months after operation. The third ureterovaginal fistula closed ten weeks after operation. The first vesicovaginal fistula is still open thirteen months after operation, and the patient now has a recurrence. The second vesicovaginal fistula closed spontaneously within a few weeks after her discharge from the hospital.

This experience bears out the theoretical objection to the clamp that it would give a relatively high percentage of fistulæ. As to the ultimate results secured, the first patient died about ten months after operation. The second died about ten months after operation. The third patient has been lost sight of. The fourth patient died largely as the result of hemorrhage during the operation. The fifth patient, a very unfavorable one, is still alive, but undoubtedly will die from the disease, as there is an extensive growth. The sixth patient, a most unfavorable one, shows no evidence of recurrence thirteen months after the operation. The seventh patient, also an unfavorable case, has a recurrence. The eighth patient, also an unfavorable one, shows no evidence of recurrence one year after the operation. The ninth patient, a very unfavorable one, shows no evidence of recurrence. The tenth patient, a very unfavorable one, died five months after the operation.

It has always been my habit to present the unfavorable side of operations as well as the more pleasing side, and therefore I have made this supplementary report.

Those who oppose operation for cancer might conclude that their contention was supported by this experience. I do not feel at all that this is true, as this series of cases was a most unfavorable one, and undoubtedly the patients embraced in this series have suffered much less as a result of operation than they would have done without it. It seems to me that the true conclusion to be drawn from my experience with this series of cases is that the most pressing need in the treatment of cancer of the uterus is that the diagnosis of the disease shall be made early, in order that the patients may be submitted to early operation. In that case I feel confident that much better results can be secured.

So far as the electrocautery clamp is concerned, I believe that we should secure better results with it than with the ligature, knife and scissors, used after the classical technic. Also, I am firmly convinced that hysterectomy can be performed with relative safety in a more advanced type of cases with the electrocautery clamp than is true of the classical technic. This is because a dry field is left after operation. On the other hand, I am satisfied in this class of cases that a definite percentage of ureteral and vesical fistulæ will be produced.

THE INVASION OF CARCINOMA CERVICIS UTERI INTO THE SURROUNDING TISSUES

AND ITS BEARING ON THE MORE RADICAL OPERATIONS FOR THAT DISEASE.

JOHN A. SAMPSON, M.D.

Resident Gynecologist, the Johns Hopkins Hospital; Instructor in Gynecology, Johns Hopkins University.

BALTIMORE.

(*Concluded from p. 1275.*)

OPERATIVE TREATMENT OF CARCINOMA CERVICIS UTERI.

It is evident that hysterectomy alone seldom cures this condition. As, for instance, in 12 of 15 cases in which the more radical operation has been done, the growth was found to have extended beyond the uterus, as has been mentioned in this paper. In the Johns Hopkins Hospital there have been 63 vaginal hysterectomies, with 5 deaths; 26 combined abdominal and vaginal hysterectomies, with 5 deaths, and 67 abdominal hysterectomies, with 16 deaths. The comparison of the percentage of cures and also the primary mortality in these three classes of cases is of no value, for the abdominal or combined abdominal and vaginal operation has in many instances been used instead of the vaginal operation, because the growth was too far advanced for the vaginal route. It can never be hoped that the abdominal operation will be attended with as low a primary mortality as the vaginal; on the other hand, by the vaginal route the wide excision of the parametrium and pelvic lymph nodes is impossible.

Whether one shall employ the vaginal route or the more radical abdominal operation in these cases can not be determined from statistics, for sufficient time has not elapsed since the use of the more radical abdominal operations to furnish enough cases to compare with those removed by the vaginal route.

Olshausen[13] has recently endeavored to compare the results of the two methods of operating, and concludes that for the majority of cases he prefers the vaginal hysterectomy. He states that he has had 671 cases, of which 31.6 and 44 per cent. (two periods) were operable, with a primary mortality of 6 per cent.; 74 per cent. of the cases operated on were free from recurrence at the end of two years, and 38.8 per cent. at the end of five years. He compares these with Wertheim's 120 cases, of which 40.3 per cent. were operable, with a primary mortality of 20 per cent., and 77 per cent. free from recurrence at the end of two years. Five years have not elapsed since Wertheim's first cases were operated on, so one has no way of comparing the results at the end of this time. Our results, with less than 25 per cent. free from recurrence at the end of five years, as compared with Olshausen's 38.8 per cent., can only be explained on the ground that in the patients who were operated on by him the growth was limited to the uterus

13. Olshausen: Zum Vergleich der vaginalen und abdominalen Operationsmethode bei Carcinoma uteri, Zeitschrift f. Geburt. u. Gyn., 1903, vol. l, No. 1, pp. 1-6.

in more instances than in our cases. The most ardent supporter of the vaginal route must admit that only those cases can be cured by a vaginal hysterectomy in which the growth is limited to the uterus. Even Olshausen states that it is advisable to use the abdominal route in those cases in which the parametrium is involved, so that the ureters may be the more safely dissected from the cancerous tissue.

Could one operate on cases before the growth had extended beyond the uterus, then the vaginal operation would be the operation of choice, as it is the one attended with the lowest primary mortality. In view of the fact that clinical experience can count for so little, the decision as to the choice of an operation must be based on a study of the parametrium and the pelvic lymph nodes in the so-called operable cases. The operation which should give the highest percentage of cures is one in which the lymphatics were removed from the sides of the pelvis, and *en masse* with them the growth and uterus, including all the tissue from pelvic wall to pelvic wall.

DESCRIPTION OF A MORE RADICAL OPERATION.

1. Building up of the patient before the operation, rest in bed, and treatment of anemia, if present, are all very essential if anything can be gained by it; on the other hand, some patients seem to lose by a too long preliminary preparation.

2. A preliminary curettage of the growth seems to me to be unnecessary, except in occasional instances, where it is the only way available to control the bleeding in order that the patient may be in a better condition to stand the operation. Theoretically, it would seem to be attended with danger of causing a spread of the disease. In one case in this hospital where the cervix was curetted the cervix and tissue about it became infected, probably from organisms present in the necrotic growth, causing an inflammatory condition about the cervix, and as a result the operation had to be postponed. The patient left the hospital, later refusing operation. In two other cases in which there was a preliminary curettage of the cervix, I painted the raw area with a gum acacia suspension of lamp black, thinking that it might get into the lymphatics and thus I would be able to study its distribution in the specimen removed later by operation. The operation in one case was five days and in the other one week after the curettage. The lamp black was found in the lymph spaces near the raw area caused by the curettage, but none in the parametrial or pelvic lymphatics. The danger of infection occurring during the operation is minimized by wiping the vagina out with gauze just before burning across it, and clamping it with two large right angle clamps, and burning between the two clamps with a Paquelin cautery. The uterus, with the vaginal cuff clamped below the growth, may thus be removed with very little danger of infecting the field of operation.

3. The preliminary catheterization of the ureters certainly aids during the operation, and should be done before the patient takes the anesthetic. I have operated with and without having the ureters catheterized, and in two cases have had only one catheterized, and find that the catheterized ureter is much easier to locate and is a very important landmark in controlling the vesicovaginal and uterovaginal plexuses of veins which are close to the ureter near its entrance into the bladder. The ureters can usually be catheterized with the patient in the Sims posture. This posture is not as generally satisfactory as the knee-chest, but is much easier for the patient, and unless she is very stout is usually just as satisfactory for the physician.

4. After the patient is anesthetized the passing of a rectal tube will frequently relieve any distension of the rectum, if gas is present, and this should be left in the rectum during the operation, for it keeps the rectum empty and can easily be palpated, and so serves as a means of locating the rectum, as the renal catheter does the catheterized ureter.

5. The patient is now placed in the high Trendelenburg position and an incision is made from the umbilicus to the symphysis down to the peritoneum, but not through it. The peritoneum is now pushed back from the anterior abdominal wall and a transverse incision is made through it just above the bladder. This gives rise to a peritoneal apron, which, after pushing back the intestines, is sutured to the posterior pelvic wall with catgut, thus shutting off the general peritoneal from the pelvic cavity and keeping the intestines from the field of operation, and doing away with bolsters and gauze pads in the general peritoneal cavity. This exposure, which was first described by Poten,[14] is all that could be desired, especially if a self-retaining retractor is used and the sides of the abdominal incision are protected with gauze. It seems to me that the incisions proposed by Amann[15] and Mackenrodt,[16] where the rectus are cut, are unnecessary. I have used the Poten incision in twelve or fifteen of these more radical operations, and think it is much to be preferred to the older methods of packing back the intestines with gauze. It protects the abdominal cavity better and possibly also diminishes the shock of the operation, although I have seen patients at the close of an operation where this was used apparently as much shocked as in other cases where it has not been used. This peritoneal flap is released at the close of the operation, and the incision in the peritoneum is closed transversely.

6. After obtaining a satisfactory exposure, the high Trendelenburg position may be lowered if so desired. The ovary on the left side is now grasped by a pair of forceps and pulled outward and downward, thus making taut the ovarian vessels and the peritoneum covering the iliac vessels. The peritoneum is now split below the parallel to the ovarian vessels as high up as the iliac vessels. The ureter will lie with its sheath on the lower peritoneal flap and be out of harm's way. The ovarian vessels and the round ligaments are now cut. Beginning at the division of the common iliac artery (the apex of the pelvic axilla), dissect downward, removing the fat and lymphatic structures, including lymph nodes from along the iliac vessels, thus exposing the pelvic vessels and removing the tissue *en masse*. By using a blunt dissector or a small wad of gauze on a clamp, and always dissecting down along the vessels, hemorrhage may be avoided. The uterine artery is exposed and ligated at its origin. I do not think that there is any operative advantage to be gained in ligating either the internal iliac artery or its anterior branch over the ligation of the uterine artery alone, and there is this disadvantage, that the nutrition of the pelvis is interfered with, thus predisposing it to infection and possibly necrosis. The other side is treated in a similar manner. If difficulty is experienced in locating the uterine artery, first find

14. Poten: Die quere Eröfferung des Bauchfells besonders bei der abdominellen Entferung des Uteruskrebs, Cent. f. Gyn., 1902, vol. xxvi, pp. 750-753.

15. Amann: Ein neuer Weg zur Extirpation der carcinomatösen Uterus, Cent. f. Gyn., 1901, vol. xxv, pp. 744-750.

16. Mackenrodt: Die Radikaloperation der Gebärmutter-Scheidenkrebses mit Ausräumung des Becken Cent. f. Gyn., 1901, vol. xxv, pp. 789-794.

the obliterated hypogastric and follow that back, taking care not to injure its superior vesical branch, and this will lead one to the uterine vessel.

7. The tissue on either side is now dissected from the sides of the pelvis, thus freeing the bladder and uterus with all the tissue from pelvic wall to pelvic wall, including the lower portion of the ureters in one mass.

8. The uterus is now drawn upward, thus making the uterosacral ligaments taut; these are cut on each side, care being taken to avoid the ureter at this place; the vagina is now freed posteriorly from the rectum, care being taken to go well out toward the rectum and give the cervix and vagina a wide margin. This allows the uterus to be lifted further out of the pelvis.

9. The uterus should next be pulled upward toward the umbilicus and the bladder dissected free from the cervix down to the entrance of the ureters into that organ. If the bladder is adherent an opening should be made into it above the adherent portion, and with a finger in the bladder the exact area involved may be palpated and excised. This opening into the bladder aids in freeing the bladder in all cases in which there is any evidence of the growth being adherent to it.

10. The next step is a very important one, and that is to control the vaginal veins which go to form the vesicovaginal and uterovaginal plexuses of veins. These veins are situated for the most part lateral to the ureters at this level, and give rise to very troublesome bleeding unless properly controlled. The ureter should be freed just at its entrance into the bladder, and this is the one point in the operation where the catheter in the ureter is of the most value. The veins lateral to the ureter are now tied, and this will save much unnecessary bleeding and does away with the preliminary sutures described by me in previous publications.

11. The treatment of the ureters should occupy one's attention next. There is now situated in the pelvis a mass of tissue consisting of the uterus and all the tissue from pelvic wall to pelvic wall, through which the ureters pass. This tissue is held in the pelvis by the vagina; the ureters, which pass through it; the vesicovaginal and uterovaginal plexuses of veins; by the tissue uniting the vagina to the rectum posteriorly, and by similar tissue extending from the lower portion of the parametrium to the bottom of the pelvis. Whatever is done, the periureteral arterial plexus must be guarded; otherwise there is liability of ureteral necrosis; and also, if possible, the ureteral sheath should be preserved, as it protects the ureter and its blood vessels, as has been explained.

(*a*) If the growth has apparently extended out to or beyond the ureters, and especially if there is any evidence of compression of the ureters by the growth, they should be cut off just within the parametrium and also at their entrance into the bladder.

(*b*) On the other hand, if the ureters are apparently free, it is probably best not to resect them, for an implanted ureter will not protect the patient from an ascending renal infection as well as one with a natural orifice, and we must realize that a most important accessory factor in the causation of ascending renal infection is a diseased ureteral orifice, and especially a strictured one. Unfortunately, a post-operative cystitis seems inevitable in these cases, and while the severity of this may apparently be lessened by making a vesicovaginal fistula, nevertheless the excision of the lower ends of the ureters in every case needs further clinical support. The following procedure seems best: Beginning at the entrance of the ureter into the parametrium, an incision is made through the lateral wall of the sheath for its entire length, and the ureter is very carefully shelled out, taking care not to injure its periureteral arterial plexus. In doing this one realizes the importance of having ligated the vaginal veins as has been described.

12. After having disposed of the ureters either by having resected their lower ends or else shelled them out of their sheath and gently drawn them to one side, the cervix must be freed all around posteriorly and laterally down to the vagina. This is difficult, for there are always troublesome vessels here, the loss of control of which may give rise to very serious bleeding. This is the only place in the operation where I think the cautery clamp can be used with advantage, and I have tried it here, but prefer clamping with long artery clamps and cutting between, and then ligating with catgut, or else passing the catgut sutures first, with a large curved needle, well out toward the pelvic wall, and after tying, cutting internally to the ligature.

13. A wide excision of the upper portion of the vagina is very essential in these operations. On the other hand, I think that there are disadvantages in removing long portions of uninvolved vagina, for the bladder will lose the support afforded by the anterior vaginal wall. In order to determine how much of the vagina should be removed, I have found very serviceable the end of a spool which has been covered with gauze and grasped by a heavy pair of Jacobs' forceps. If this is inserted in the vagina, by palpation one can easily feel the rim of the spool and so determine how much of the vagina should be removed.

14. After dissecting the vagina free down to a point determined by palpating the end of the spool in the vagina, the vagina is first wiped dry from below, and then clamped with two right-angle clamps and burned across between the two clamps with a Paquelin cautery. The specimen, the vaginal end of which is closed by the upper right-angle clamp, is removed through the abdominal incision. The lower clamp is now released and the anterior and posterior vaginal walls are grasped with forceps, and a piece of gauze is forced through the vagina from above in order to remove all traces of necrotic material which may not have been removed when the vagina was wiped out before clamping and burning across it.

15. The ureterovesical implantation: The bladder should first be freed laterally and anteriorly so that the ureter may reach the bladder with as little tension as possible. The ureter in the lower peritoneal flap should be drawn down to the bladder. The opening into the bladder may be made in various ways. A long pair of forceps may be introduced into the bladder through the urethra and the bladder wall pushed out in a portion of the bladder as near the original ureteral orifices as possible, but at the same time in a portion of the bladder which has a good blood supply and which the ureter can reach without tension. An incision about 1 cm. long should be made in the bladder and the forceps pushed through. The end of the ureter may be split open for a distance of from 3 to 5 mm. and after freeing it from its sheath for 1.5 to 2 cm. it is grasped by the forceps and drawn into the bladder. Another way of drawing the ureter into the bladder is to grasp the bladder wall with two thumb forceps, at the place chosen, as stated above, in which the ureter is to be implanted. Now incise the bladder between the forceps, making an incision from 1 to 1.8 or 2 cm. long. The split ureter may now be drawn into the bladder by a suture armed with two

needles which is first passed through the end of the ureter and then into the bladder opening and out through the bladder wall, about 1 to 1.8 cm. beyond the incision. After having drawn the ureter into the bladder (by forceps or by the suture), the bladder wall should be sutured with mattress sutures of fine silk to the ureteral wall, the sutures including only the muscular coats of the bladder and ureter. Usually 2 or 3 sutures will be sufficient, taking care not to compress the ureter. If possible, have the ureter pass through the bladder wall in an oblique direction. Care should be taken that the ureter will not be kinked when the ureter and bladder are in the position they will assume at the close of the operation, and that the ureter is not compressed by the sutures, causing a stricture.

The most important feature of the implantation is that the ureteral sheath and peritoneal flap are now sutured to the bladder wall. This relieves to a great extent the tension of the implantation and the ureteral sheath is preserved and the blood supply of the ureter protected. If possible, fix the site of the implantation by suturing the bladder at this place to the side of the pelvis.

I have made 14 ureterovesical implantations in women for various causes, and 25 in dogs, and have tried the method previously reported by me,[17] and also the Budinger[18]-Witzel[19] implantation, but think that, while both of the latter have their advantages, the one described above will be the most successful in the greatest number of cases.

16. The vesico-uterine peritoneal fold should be sutured to the anterior vaginal wall and the recto-uterine fold to the posterior vaginal wall. A small gauze drain is now placed in each side of the pelvis and out through the vagina, taking care that they do not come in contact with the ureters. All raw areas are now covered with peritoneum.

I have done 15 of these more radical operations, resecting the trigonum of the bladder and reimplanting both ureters in one, resecting and reimplanting the lower ends of both ureters in another, and resecting the lower end of one ureter and reimplanting in the bladder in two cases. Three of the 15 cases have died, one on the fifth day from intestinal obstruction, and two from ascending renal infection, one dying on the ninth day and the other on the seventeenth. In the two cases dying from renal infection the ureters were resected in one but not in the other. Ureteral necrosis occurred in one case in which the ureters had been dissected free.

The post-operative treatment of these cases is most important, and especially so is the care of the bladder. Post-operative cystitis seems almost inevitable. It seems best that the patients should be catheterized every three hours with a two-way catheter and the bladder irrigated with salt solution after the catheterization. Urine cultures should be taken frequently and cystoscopic examinations made, and, if a severe cystitis develops, I think that the best treatment is to make a vesicovaginal fistula. This may be done without an anesthetic and closed without one.

It must be borne in mind that the object of the surgeon should be to cure as large a percentage as possible of all cases coming under his care. It is evident that the more radical operations extend the operability of cancer of the uterus, and possibly cases may be cured which previously would have been considered inoperable. On the other hand, we must not forget that the primary mortality is higher, and this must be taken into consideration in estimating the percentage of cures. The first demand is a wide excision of the primary growth and the removal of the pelvic lymph nodes is of secondary consideration, for they are probably not involved in over 50 per cent. of the operable cases, and in those cases in which they are involved we can not hope to remove all the involved lymph nodes in every instance.

For the above reasons we must consider two distinct classes of operable cases:

1. Patients where the uterus is freely movable and the growth apparently early.

2. Those in which the growth is apparently extensive and its removal difficult, the so-called "border-line cases."

In the first class of cases the patients are usually in good condition and the operation relatively easy. In these cases we should try to do as thorough an operation as possible. The lymphatics should be removed from the sides of the pelvis, the ureters freed and all tissue lateral to the cervix removed. We are thus able to improve the chances of a cure, and also, the patient being in excellent condition and the parts freely movable, the operation can be quickly accomplished, and with a low primary mortality.

In the second class of cases the patients are apt to be in poor condition and the extensive growth makes the operation very difficult. If the operation is indicated, the first demand is the removal of the primary growth. The removal of the lymphatics should be a secondary consideration and should be reserved for the last, and only removed if the condition of the patient warrants it, for we should expect them involved in only about from 50 to 60 per cent. of these cases. In these cases the operation is difficult and the primary mortality necessarily high, especially as the patients are apt to be in poor condition and unable to stand a severe operation. It seems that unless all can be removed, nothing should be tried, for severe operations are not justifiable for gaining very uncertain and temporary palliative results.

These are the cases in which excisions of the lower ends of the ureters and portions of the bladder are justifiable if indicated. By so doing I believe that we may hope to cure some of these cases, for the parametrium apparently is able to temporarily check the further advance of the disease, and by a wide excision of the entire growth we should expect to cure these cases, unless the disease has metastasized to parts which can not be removed.

CONCLUSIONS.

1. The invasion of carcinoma cervicis uteri into the surrounding tissue manifests itself clinically:

First, in the large per cent. of the cases (over 60 per cent. of the cases admitted to this hospital) in which the disease is not diagnosed until after it has extended beyond operative treatment.

Secondly, in the still larger per cent. of the cases (over 75 per cent. of the cases operated on in this hospital after a period of five years or more) in which the growth returns after the removal of the uterus for this disease, showing that at the time of the operation the cancer had already extended beyond the uterus, and on this account hysterectomy alone seldom cures this disease.

2. A careful study of the specimens removed by the

17. Sampson: The Importance of a More Radical Operation in Carcinoma Cervicis Uteri, as Suggested by Pathologic Findings in the Parametrium. Johns Hopkins Hospital Bulletin, 1902, vol. xiii, pp. 299-307.

18. Budinger: Beitrage zur Chirurgie des Ureters, Archiv f. Chirurgie, 1894, vol. xlviii, pp. 639-682.

19. Witzel: Extraperitoneale Ureterocystostomie mit Schrägkanalbildung, Cent. f. Gyn., 1896, vol. xx, pp. 289-293.

more radical operations (that is, where an attempt has been made to remove the lymphatics from the sides of the pelvis, and with them the uterus and growth, with all the tissue from pelvic wall to pelvic wall) has shown that in 12 out of 15 of the so-called "operable cases" the growth had extended beyond the uterus at the time of the operation, demonstrating that, at least in these 12 cases, hysterectomy alone would not have removed the entire diseased condition. In seven of these cases there was a direct extension of the disease from the cervix. There were metastases to the parametrial lymph nodes in four cases, while an apparent metastasis to a parametrial lymph space (at some distance from the cervix) was found in only one case. In 12 cases in which the pelvic lymph nodes have been studied, cancer has been found in 6. Further investigations of the same cases may show an even greater number in which the growth is not limited to the cervix. The study of these cases has shown that there is no relation between the size of a primary growth and the presence or absence of lymphatic involvement, and that only by the use of the microscope can we make a positive diagnosis of the presence or absence of metastases in the parametrium or pelvic lymphatics.

3. A study of the relation between the cervix and the neighboring parts shows that this is altered by the position of the uterus in the pelvis, i. e., whether in anteposition or retroposition, high in the pelvis or in *descensus*, and especially the left and right lateral positions of the uterus. The position of the uterus in the pelvis must be considered a factor in determining what parts may first be involved in the extension of the disease.

4. The relation between carcinoma cervicis uteri and the ureters manifests itself clinically:

First, in renal insufficiency resulting from a compression of the ureters by the growth.

Second, in the frequency of accidental injury to the ureters occurring during operation for the removal of the growth, there having been in the Johns Hopkins Hospital 19 cases of accidental injury to the ureter in 156 hysterectomies for carcinoma of the cervix, as compared with only 11 similar injuries in 4,513 other major gynecologic operations, Jan. 1, 1904.

5. The anatomic relation between the ureters and the cervix shows that this relation is altered by the position of the uterus in the pelvis, and that the lower end of the cervix is very near the ureters, and that this distance may be less than 5 mm., especially in the lateral displacements of the cervix; so that it would take but very little extension of the growth either by direct invasion or by metastases for it to reach or extend beyond the ureters.

6. A study of the specimens removed in the more radical operations demonstrates the frequency of the involvement of the parametrium by a direct extension of the growth (in 7 out of 15 operable cases), and also by metastases, especially to the parametrial lymph nodes (in 4 out of 15 operable cases, and in 3 of the 4 cases the parametrial lymph nodes were involved without there being a direct extension of the growth into the parametrium), and for these reasons the ureters pass through tissue which should be removed.

7. Anatomic, experimental and clinical studies show that, while many liberties may be taken with the lower ends of the ureters, their blood supply must be preserved, otherwise necrosis will occur; and that the most important etiologic factor in the causation of ureteral necrosis is injury to the periureteral arterial plexus from roughly handling the outer perimuscular fibrous coat of the ureter, in which these blood vessels are imbedded. Other factors are also important in the causation of ureteral necrosis and should be guarded against, as exudates, especially if infected, gauze against the ureter, necrosis of the surrounding tissues, and general lowered resistance of the patient.

8. The relation between carcinoma cervicis uteri and the bladder manifests itself clinically:

First, the bladder wall may become involved in the anterior extension of the disease, and with the necrosis of the cancerous tissue a vesicovaginal fistula is formed.

Second, in the frequency of accidental injuries to the bladder in the operative treatment of this disease, there having been 17 such injuries in 156 hysterectomies for carcinoma cervicis uteri in the Johns Hopkins Hospital.

Third, in the frequency of cystitis following these more radical operations, suggesting that the operation must be considered an accessory etiologic factor in its origin. Cystitis has occurred in 12 out of 16 cases in which I have followed the bladder conditions after these operations, resulting in ascending renal infection and death in two cases. In 3 of 4 cases in which the bladder apparently escaped an accidental vesicovaginal fistula was present.

9. As a result of the removal of the uterus, with cervix and upper part of the vagina and parametrium on each side, a large area of the bladder loses its natural support, and in addition its blood and nerve supply is injured, so that it is unable to resist infection, and cystitis occurs.

10. The best surgical treatment for infection in any part of the body is incision and free drainage, together with rest of the part diseased, and apparently that is what a vesicovaginal fistula does for these cases.

11. The excision of portions of the bladder adherent to the growth improves the chances of a cure, and the presence of a vesicovaginal fistula apparently lessens the severity of a postoperative cystitis and the dangers of an ascending renal infection.

12. The relation between carcinoma cervicis uteri and the rectum manifests itself clinically in the rectovaginal fistulæ resulting from the invasion of the rectum by the growth and by the accidental injuries to the rectum occurring during hysterectomy for the disease.

13. The relation between the cervix and the rectum is altered by the position of the uterus in the pelvis, and the invasion of the rectum by carcinoma cervicis uteri may occur by a direct extension of the growth either through the cul-de-sac, the surfaces of which may become adherent, or the posterior vaginal wall may become involved and the rectum secondarily invaded from the vagina, or in the lateral positions of the uterus the growth may extend across the obliterated cul-de-sac from the parametrium, which lies in front of the rectum, and which may have been invaded by the growth.

14. The relation between carcinoma cervicis uteri and the vagina manifests itself in the direct invasion of the vagina by the primary growth and in the so-called vaginal implantations. A wide excision of an involved vagina is most important; on the other hand, the removal of long portions of uninvolved vagina weakens the bladder and makes the closure of raw areas more difficult.

15. A study of the pelvic lymph nodes shows that they are involved in from 30 to 50 per cent. of the operable cases, and that there is no relation between the size of the primary growth and the presence or absence of metas-

tases to the pelvic lymph nodes. Furthermore, a large node is not necessarily cancerous and a small one may contain cancer. On this account the pelvic lymph nodes should be removed in every instance of the operative treatment of this condition, if the condition of the patient warrants it.

16. The importance of an early diagnosis can not be too strongly emphasized, for by it the operability and percentage of cures are increased and the primary mortality is lowered.

17. Past clinical experience and a study of the specimens removed by the more radical operations has taught us that hysterectomy alone seldom cures this disease, and that the operation which will give the highest percentage of cures is one in which the lymphatics are removed from the sides of the pelvis and *en masse* with them the growth and uterus and all the surrounding tissue from pelvic wall to pelvic wall. What shall be done with the lower ends of the ureters which pass through this tissue which should be removed? If the growth extends out to or involves the ureteral sheath, the lower ends of the ureters should be sacrificed and the renal ends implanted in the bladder, taking care to secure the ureteral sheath and the peritoneal flap on which the ureter with its sheath lies, to the bladder, in order to relieve the tension of the implantation and protect the ureter. If an attempt is made to dissect an adherent ureter free, the cancer is not only apt to return, but ureteral necrosis will probably result. Why not resect the lower ends of the ureters in every instance? Postoperative cystitis seems to be inevitable, and an implanted ureteral orifice is an injured one; and, while suturing the ureteral sheath and peritoneal flap to the bladder, which may be freed, relieves in a measure the tension of the implantation, nevertheless there must be some present on account of the amount of ureter resected, and a ureter implanted into the bladder under tension means a ureteral stricture. Animal experimentation and clinical experience show that an injured ureteral orifice, especially if a stricture is present, is very apt to lead to ascending renal infection in the presence of cystitis.

It would seem that with our present knowledge of the subject the resection of the ureters should be restricted to those cases in which there is apparently evidence of the growth having extended out to or beyond them. If the growth has apparently not invaded the ureteral sheath, then the ureteral sheath may be split open by means of an incision made through its lateral surface and the ureters very carefully shelled out. While there is danger of ureteral necrosis as a result of shelling the ureter from its sheath, if the outer coat of the ureter is handled very carefully this danger is reduced to a minimum, and in time the ureter will form a new sheath from the tissue in which it becomes imbedded.

If the bladder is adherent to the growth, the portion of the bladder adherent should be excised, for the first demand is a wide excision of the primary growth, and a vesicovaginal fistula apparently lessens the severity of cystitis and the dangers of ascending renal infection. After the operation in these cases in which the bladder is intact, frequent catheterizing of the bladder followed by irrigation is indicated, and if cystitis develops the formation of a vesicovaginal fistula apparently offers the best chance for a cure and lessens the danger of renal infection. The vesicovaginal fistula may be made and closed without the use of a local or general anesthetic.

18. Are these operations justifiable? I have done 15, resecting and implanting both ureters in one, resecting the trigonum of the bladder and reimplanting both ureters in another, resecting and implanting one ureter in two. In the remaining 11 cases the ureters were dissected free and ureteral necrosis occurred in only one. Three have died, one on the fifth day from intestinal obstruction and two from ascending renal infection, one dying on the ninth and the other on the seventeenth day. In these last two cases the ureters were resected in one, but not in the other. So far, I have not lost any from immediate effects of the operation itself. The duration of the operation has varied with the difficulties of obtaining a satisfactory exposure, and also with the extent of the growth, that of the longest being four and a half hours and the shortest two hours and ten minutes. Several of these cases have been in a very critical condition at the close of the operation, emphasizing the narrow margin with which one has to work and the importance of an exact knowledge of the anatomy and pathology of the parts concerned, for any "puttering" will surely result in the loss of life, which is especially true in the so-called "border-line cases." The surgeon who is unwilling to learn thoroughly the retroperitoneal anatomy of the pelvis, and who is not in a position to recognize and meet the vesical and ureteral post-operative complications, should not attempt such an operation. The large percentage of recurrences in the so-called operable cases demands a more radical operation. Clinical experience shows that this operation is possible; but, on the other hand, that it is difficult unless one is thoroughly familiar with the anatomy of the parts concerned, and that the dangers of post-operative complications are great, thus requiring special training and a most careful attention to the details of the operation, which should not be learned entirely on patients.

A study of the specimens removed by these more radical operations shows that the disease has already extended beyond the cervix in a large percentage of the cases (12 out of 15 cases) at the time of operation, thus demonstrating why hysterectomy alone so seldom cures this disease. On the other hand, apparently the lymphatics of the parametrium and of the pelvis are able to arrest temporarily the progress of the disease, and if these are removed with the disease we should expect a cure in many instances in which the disease has extended beyond the uterus. Some claim that when the disease has extended beyond the cervix, either by direct extension or metastasis, that the case is hopeless. If it can be shown in from five and ten years from now that patients are living and free from cancer, in whom there was found to have been an extension of the disease from the cervix (as shown by the microscope) at the time of the operation, then these more radical operations are justifiable. On the other hand, we will never know whether or not they are justifiable unless they are done, and the specimens removed very carefully studied in order to form a basis from which to draw conclusions.

19. The object of the surgeon should be to cure as large a percentage as possible of all cases coming under his care, and, while the more radical operation not only increases the operability of cancer and also the percentage of cures, it is at the same time attended with a higher primary mortality, which is especially true in the so-called "border-line" cases, where the operation is difficult and the patients are usually in poor condition. For these reasons we must consider two distinct classes of operable cases:

(*a*) Those where the uterus is freely movable and the patient in excellent condition, thus permitting a thor-

ough operation, which can be quickly and easily accomplished and with a low primary mortality.

(*b*) The so-called "border-line" cases, where the growth is extensive and the patient is apt to be in poor condition. These patients usually will not stand a very severe operation, and on this account the first demand is a wide excision of the primary growth, and the removal of the pelvic lymphatics should be reserved for the last, and attempted only if the condition of the patient warrants it. The primary mortality will be high in the operative treatment of these cases. Still, we should hope to be able to save a few by a wide excision of the primary growth, even if the lymph nodes are not removed, for they are probably not involved in over 60 per cent. of these cases.

DISCUSSION

ON PAPERS BY DRS. FINDLEY, NOBLE AND SAMPSON.

Dr. William H. Wathen, Louisville, Ky., said that a number of years ago a few of our progressive surgeons made a claim for a more radical operation for cancer of the uterus, especially when it had its origin in the cervix and that we found surgeons opening the abdomen and dissecting out the invaded tissues. The operation was prolonged and the immediate results were far more fatal than were those of previous methods. Dr. Wathen at that time took the position that this radical operation was not justifiable, and he has had no reason to recede from that position; nor has he seen statistics that justify a recession. The mortality is greatly increased, especially at the hands of inexperienced operators. It is impossible to dissect out all the infected glands. The larger glands may be dissected out, but what is the use when a large number of infected smaller glands that can not be discovered are left? Secondary invasion is bound to occur. Therefore, in his opinion, the operation mentioned is not justified. He said that we should go as far beyond the area of the cancer as possible, but should not prolong the operation unnecessarily. Furthermore, in these protracted cases, we never know when or how far the glands are invaded. Sometimes they are involved in the early stages, and sometimes not till later. The plan suggested by Dr. Noble would be a very good one if it could be applied in the proximity of the ureters without the danger of injury, which he has reported, for the reason that the method might destroy some of the cancerous tissue that otherwise would be left in the ligature or clamp and cause infection.

Dr. John G. Clark, Philadelphia, said that notwithstanding the more radical means which have been instituted to permanently eradicate cancer, as yet there does not appear to have been a great decrease in the ultimate mortality further than the reduction due to more rigid and early examination and earlier operation. Therefore, hope lies in an early and radical operation. He said that the great merit of Dr. Sampson's work is that it does not rest on mere theory, but is based on the most careful histologic study of metastases to the pelvic lymph glands and their surrounding structures.

From 1894 to 1897, while Dr. Clark was engaged in the perfection of the radical operation described by Riess and himself, he was most enthusiastic as to its possibilities, and believed that if he could succeed in extirpating the pelvic lymph glands he would greatly enhance the curative value of the radical operative measure, but his experience since that time has led him to formulate the working hypothesis that if the glands are found after removal to be the seat of metastatic foci, the prognosis is bad. This opinion is further confirmed by Wertheim's statistics, which demonstrate from his careful study of the extirpated glands that in 33 per cent. of his cases operated on by the radical method, they are not the seat of metastasis. Dr. Clark said that when we consider that at the highest we can not hope for more than 30 per cent. of ultimate cures, he believed that these favorable results occur almost wholly among the 33 per cent. of cases in which there are no metastases. In Dr. Sampson's 15 cases there were three in which there were no metastases, and while Dr. Sampson's series is not so large as Wertheim's, still the percentage in which there were no metastases is about the same. The work, therefore, of both Sampson and Wertheim, together with Dr. Clark's own practical experience, indicates that our recoveries depend on the absence of metastases.

Dr. Clark approved the extreme caution which Dr. Sampson exercises in advocating its extensive adoption, and said that no man should attempt this performance unless he is thoroughly skilled technically, and has the most accurate anatomic knowledge of the pelvic organs and the surrounding tissues. If it were possible to leave this matter in the hands of Dr. Sampson until he could prove definitely that the most radical measures are to be commended it would be much the wiser plan; but to increase the statistics through which it is only possible to prove its value, it will be necessary for other surgeons to adopt the method. With the electrocautery knife the tissues on both sides of the blade which come in contact with it are thoroughly burned; therefore, the frontier line of invasion is much more nearly destroyed than with the knife or scissors. It would seem, therefore, that the use of the electrocautery in all operations for carcinoma is preferable to any other means of removing the growth.

Dr. G. B. Massey, Philadelphia, said that no one can be engaged in this work for any time without concluding that cancer is a parasitic disease, although that fact has not yet been proved. The victim of cancer is every moment liable to autoinfection in some other part of the body. It is difficult to transplant a germ from one animal to another, but the metastasis resulting from the uterine discharges of cancer coming in contact with the walls of the vagina and implanting cancer there, teaches that the individual is extremely prone to autoinfection. There is great danger in curetting, cutting and scraping operations, in causing autoinfection. A cancer of the breast invariably remains movable even when the ribs are infected. Remove it with the knife and when it recurs it is no longer movable. The lymph spaces have been opened by the cutting operation, and the germs have spread into the surrounding tissue. He compared this thorough knife operation that has been advocated to a man going to hoe a garden full of weeds that are ready to drop seed, with the result of a rapid growth in the disturbed portion. He emphasized the value of cauterization and said that since the subject was presented at the last session he had demonstrated in one case that cauterization by cataphoresis has the additional advantage of being capable of being given without ether, as the uterine cervix can stand 300 milliamperes. Held there for half an hour it will do considerable cauterization, if the zinc-mercury electrode is not large. If repeated daily it is a means of doing thorough work under the guidance of observation of the patient, with less danger than if done suddenly. In treating cancer of the cervix we are working in an extremely dangerous region. Any method of destroying the disease piecemeal, if it be effectual, would give us the advantage of checking the work as we go along.

Dr. A. Lapthorn Smith, Montreal, Can., said that for several years he had dissected out the glands of the pelvis, and that so far there has been no practical result. He said that there is a great future for cancer of the uterus if the plan were adopted of operating so early that the pathologist is not sure that the disease is cancer. Since he has adopted this plan he has had better results than when he waited for the pathologist's diagnosis before operating. The time to operate is while the disease is in the precancerous stage. In many cases we know when to expect the development of a cancer, as in the case of a badly lacerated cervix in a woman over 40. In one of these cases he was clinically certain that the disease was cancer, but the pathologists reported month after month that it was not. Finally he operated and then the pathologist had no difficulty in diagnosing the removed specimen as cancer. He said that it is absolutely essential that the general practitioners throughout the country send these cases for operation just as soon as they suspect them to be cancer. By taking these uteri out and fighting about their cancerous na-

ture afterward we save the lives of the patients. The "wait-till-we-are-certain" plan has given 100 per cent. of ultimate deaths; it is time to change it.

DR. F. F. LAWRENCE, Columbus, Ohio, said that a number of years ago, to scrape out and cauterize deeply was not considered good practice. A little later high amputation was resigned in favor of vaginal hysterectomy. About sixteen years ago, in the Ohio State Medical Society, one of the most heated discussions was held on this very question, and in it one of the most distinguished and ablest men and one among the soundest in his pathologic ideas, voiced the opinion that high amputation and cautery was safer, so far as the ultimate result was concerned, than hysterectomy. Dr. Lawrence believes now that Dr. Reamy was right. In his experience for a number of years, early recurrence was the rule after hysterectomy for cancer, especially cancer of the cervix. A few years ago he found but one who had lived four years after the operation for removal of cancer of the uterus. In cases where he followed the teachings of Reamy and Lawson Tait, three or four cases had gone beyond six, seven or eight years. We must have something more than a logical argument because this does not hold in the majority of cases. We must accept those things that give us the results in the living patient for the longest time with the greatest comfort. No matter how much anatomy one knows, the best anatomist can not determine when there is infiltration of the pelvic tissues or whether he has gone beyond the cancerous area. These infiltrated tissues give the greatest trouble, and by deep cauterization the very best results are obtained.

DR. W. H. HUMISTON, Cleveland, Ohio, said that the work Dr. Sampson is doing is the foundation for future observations and results, and gives a very complete method not only for resection of the uterus and the structures of the pelvis, but also for keeping a close clinical history of cases and results. In these lengthy operations a certain number of cases succumb to the anesthetic. Dr. Humiston has found the submammary transfusion of saline solution of value and in all desperate cases he commences the injection at the beginning of the operation and continues it to the end. There is no shock and the patient leaves the table, in nine cases out of ten, in far better condition than before the operation, and the convalescence is undisturbed. He has used this method for two years with great satisfaction. That these cases are not sent to surgeons early by the general practitioner, he thinks is not their fault, as three-fourths of the cases do not present themselves to the physician until they have pain, hemorrhage and odorous discharge; and when these three symptoms are present there is a great spread of the carcinomatous disease and the results will be very bad. When a case has laceration of the cervix and eversion of the os with discharge, it is time to operate. The general practitioner should be thoroughly impressed with this idea of having these operations done immediately, and in that way many cases of cancer of the uterus will be saved.

DR. SWITHIN CHANDLER, Philadelphia, said that it was wise to examine the bladders before and after operation, particularly in the early stages of malignant disease, to learn the cause of the cystitis. Dr. Chandler said he thoroughly believed that it would have been impossible for us to advance to the point which we now occupy had it not been for the valuable assistance of the microscope and our studies in pathology. In many cases of the kind reported by Dr. Findley, it is impossible to tell whether or not the growth is malignant, except by the subsequent history of the case. In one case there was a condition in which even the pathologist thought it was malignant and advised operation, but the patient recovered after simple curettement. He said that there could be no question but that when we are sure and certain an operation should be performed in a case of malignant disease, it should be a radical operation.

DR. K. F. M. SANDBERG, Chicago, said that we look on the chorio-epithelioma a little differently from the way we looked on deciduoma malignum. We thought that these cases developed only immediately after a pregnancy, taking their origin from the decidual tissue. Now we know that they can develop years after a pregnancy and that they also may develop in the male. He said that we ought to furnish Dr. Findley and other men as much material of this kind as we can. Undoubtedly much of it is going to waste. Uteri are extirpated for cancer that may have been deciduomata. Dr. Sandberg said that the case he operated on was diagnosed as cancer, but the appearance of the tumor on exposing it made him change his diagnosis. It had a peculiar angiomatous appearance and perforated the uterus in four or five places and through the parietal peritoneal covering to the right of the rectum. There also was a tumor in the vagina and both were extirpated with good result. There was no evidence of recurrence four months after operation and the woman was in good health. It is evident that chorio-epithelioma is not so malignant as cancer.

DR. A. GOLDSPOHN, Chicago, said there are two important facts to which we subscribe: First, the extreme desirability of getting these cases at the very earliest possible moment, even, perhaps, running the chance of operating on a case where the microscope might not show the nature of the disease. Second, operating as far away from the disease focus as possible. The second proposition is open to a great deal of difference in procedure, according to the physical condition of the patient, and also as to where the recurrences of the malignant disease have been found to occur most frequently. These recurrences occur very largely in the upper part of the vagina and the connective tissues just above, indicating that the technic of the operation was defective, either in not removing enough of the tissue of the vagina at its insertion in the cervix, or that the carcinomatous elements were vaccinated into the wound at the time of extirpation. In view of the great difference in the mortality of the operation, it is far more important to remove, along with the uterus, a pretty good portion of the adjacent vagina than it is to do a somewhat risky and unwise extirpation of the glands and with it a difficult dissection of the ureters and cutting off of the circulation of the bladder with its evil effects, and a longer narcosis and higher mortality. The upper part of the vagina can be removed easily, and by a thorough procedure it will greatly improve our results.

Dr. Goldspohn said that the cautery clamp is one way of avoiding the danger of vaccination of carcinomatous elements and another is in the technic of removing the uterus. Naturally we should choose the abdominal route in the majority of cases. We should do reasonable work, and as thorough, in removal of glands, as possible, without greatly increasing the danger to the life of the patient. Then tuck the uterus into the still attached vagina and remove it from below by a process of evagination, having closed the pelvis from the abdominal cavity and also the abdominal wound, then removing the uterus easily from below with the adjacent portion of the vagina. By that method there will be the least opportunity of implantation of carcinomatous elements, and the best prospect of thorough work, without a much higher mortality. The forceps are valuable, particularly in vaginal hysterectomy for other reasons. After all cases of vaginal hysterectomy that do not positively demand drainage (as for pus tubes or extensive adhesions) the rule should be to close the abdominal cavity as after every other form of peritoneal section, at least closing the peritoneum and not leaving any drain or foreign body in contact with the peritoneum or intestines, which frequently invites adhesions of intestines, and sometimes leads to intestinal obstruction later on. In order to do this, no forceps should be left within the peritoneum, but the tying off of forceps requires heavy ligatures that are slow to be absorbed. Such infected ligatures sometimes lead to infection and breaking down of the thrombus, and consequently a late hemorrhage from the uterine artery. The electrothermic forceps avoids all this, as well as the difficult ligating high up in the vagina. In five cases he had removed the uterus by means of these forceps without any ligature at all, making it more simple and

making the possibility of closing the abdomen easy, and running practically no danger from infected ligatures.

Dr. A. H. Cordier, Kansas City, Mo., said that a few years ago he was very enthusiastic on removing as much of the tissue surrounding the uterus as possible, because he believed that that method would diminish the frequency of recurrence. After performing many operations, both with the clamp and with the ligatures, and finding that in from 95 to 98 per cent. the disease recurred and proved fatal, he abandoned the idea. Then he took up the use of the Paquelin cautery in advanced cases, where the disease had involved the vaginal wall, and his immediate mortality has been nothing so far as the operative procedure is concerned. These patients are alive as long as five or six years after the primary cauterization. He said that any operation that has a mortality of from 16 to 20 per cent. in the hands of skilled men, is a dangerous procedure. Any operation that requires two to four hours to perform will have a very high mortality, not only from the operation, but the anesthetic as well. We must not only think of the primary mortality, but also of the ultimate death rate, because that tends to discourage patients who could be operated on successfully. All these things must be taken into consideration. An operation that has no primary mortality and that prolongs life as long as can be expected, should be given the preference, hence he has been using the Paquelin cautery in these cases. It goes further into the tissue than ligature, forceps or knife; the heat destroys the diseased structures, producing an aseptic slough, and the wound heals kindly by granulation. The cancerous tissue is removed and the rapidity of recurrence is diminished. Many fail to recognize the importance of keeping down infection. It has much to do with the rapidity of the growth. Folowing the cauterization, Dr. ordier said he packs usually packs the cavity with gauze to control any oozing which might occur, and at the end of three or four days he begins the use of carbid of calcium, first drying out the cavity thoroughly, then inserting the calcium and putting a piece of gauze over this. This generates acetylene gas, which has a predilection for cells of low vitality. At the end of 24 to 36 hours the dressing is removed and a solution of potassium permanganate is used. It keeps down the odor, diminishes the discharge, prevents infection, makes the patient comfortable and prolongs life.

Dr. J. H. Carstens, Detroit, Mich., said that nothing is known about the anatomy of the lymphatics. One work on anatomy states that the lymphatics run one way, and another book says that they run somewhere else, and men who have operated do not know where they run, but pick out a few and remove them. Schauta, of Vienna, has had his assistants make a careful examination of cancer patients who die. He had 60 postmortems and every lymphatic gland was removed carefully from the pelvis, groin, above the promontory of the sacrum and the bifurcation of the aorta, up to the diaphragm. He placed these into four groups. One group comprised those in the pelvis that could be removed by abdominal hysterectomy, and he found that in 13 per cent. of these cases the lymphatics were limited to the pelvis and in 87 not; so that if one removes the lymphatics in the pelvis there are 13 per cent. to which the disease was limited. The question is whether one should operate on 87 per cent. where the lymphatics are elsewhere and can not be reached, simply for the sake of removing them in 13 per cent., and subject patients to such a serious operation. Schauta found lymphatics in the groin with cancer, and he found others in the pelvis absolutely free from cancer, and others over the sacrum and at the bifurcation of the aorta full of cancer; and cases where the second and first stages were free, but glands up near the diaphragm contained cancer cells. Now, what is the use of operating on the lymphatics in the pelvis and around the ureters and aorta when others that can not be reached are involved? Schauta had 160,000 sections made. Every gland was sectioned carefully. He found that the lymphatics did not only contain cancer cells, but the surrounding cellular tissue was full of cancer cells, and this, usually, is not removed. So what is the use of removing the glands? He also found that it is not necessary to remove these glands; that the cancer cells in them usually do no harm because the glands hold them and do not allow them to travel any further, and eventually they die there and that the recurrence of cancer takes its origin in the surrounding loose connective tissue. Dr. Carstens said that we know very little about cancer after all. If one can not remove a cancer by the vagina, one should leave it alone. Do a radical operation per vagina and do it early. Have every case of lacerated cervix and curettage examined carefully for cancer, and if it is found, that is the time to operate.

Dr. A. J. Downes, Philadelphia, said that he had used the cautery clamp in 70 cases of cancer. In one the entire vagina had been removed, and in his efforts to get close to the bladder he scorched it and a fistula resulted, but healed within six months. The patient died 18 months afterward, but without any recurrence in the vagina. In another case he encircled the vagina from below, freed the cervix and found that the right broad ligament was very much involved, and the clamp must have got very close to the right ureter for a uretero-vaginal fistula resulted, but it healed nicely. He said that these accidents are not a discredit to the method, and did not argue against its further use, for as Dr. Noble said, in two of the cases one would do a very close vaginal operation and leave more tissue than we did in this case, but even in these very difficult cases it is possible to isolate the ureters. The operation for cancer as Dr. Downes performs it includes cauterization of the cervix. He encircles the cervix, beginning considerably below it, and dissects it out, follows up along vagina, and then opens the abdomen. It is a better operation than just cauterizing the cervix for the reason that we have already cauterized the cervix before we remove the balance of the uterus. He said that a careful dissection and using a sufficient amount of heat before cutting the base of the broad ligament without scorching the ureter, is enough; no dissection could go beyond that.

Dr. Frank Cary, Chicago, said that where there are two cases that come for operation, in one there is much involvement of tissue, as shown macroscopically and microscopically, it is operated on and does not recur for a long time. In another case there is little involvement of tissue, it is operated on and the patient succumbs to an early recurrence. Now is it not possible that in the first case the cellular connective tissue was in excess of the cancer cells, while in the latter case the cells developed excessively while the connective tissue developed very slowly? In his opinion the man with the knife is better able to tell where he is going than the man with the cautery. The only advantage of the cautery that he could see is that it leaves a large scar which, possibly, protects the tissues for a longer time against invasion by the cancer cells.

Dr. C. O. Thienhaus, Milwaukee, Wis., said that in looking over the large amount of literature on this question compiled within the last few years, he had been impressed with two facts: First, the primary mortality of these abdominal operations is much higher than in those cases performed by the vaginal route. Secondly, he failed to see that the ultimate results of the abdominal operations up to this time are better than those of Schuchard, who uses the vaginal route with the aid of what he calls a paravaginal incision. By this incision, extending from the cervix down on the left side of the rectum and anus to the os coccyx, the parametria are brought into such clear view that they can be resected at liberty even up to the pelvic border. His results have been 40 per cent. radically cured after five years, and his statistics are unquestionably reliable. So long, therefore, as the advocates of the abdominal route with extirpation of the glands can not show better results, we are justified, in order to avoid their primary high mortality, in using the vaginal route with the aid of the paravaginal incision. One other fact which has not been pointed out sufficiently has to be taken into consideration, and that is that a differentiation must be made, as well in regard to the histology of the different forms of cancer of the uterus and as in regard to their virulence. (Slow or rapid progress in growth locally and the possibility of early metastasis or metastasis in a very late period.) What shall we do with so-called

inoperable cases, taking it for granted that a case which has transgressed the boundary of the uterus and has formed metastatic growths in the parametrium should be classified as such? Schuchard and others have oftentimes attacked even such cases by radical operative procedures. Very interesting in this respect are recent statistics compiled by Lomer, in which he collected over 130 cases which had beeen treated by thorough curettement, followed by the use of the thermocautery, and which were still living after a period of five years. This shows that even for those cases we are enabled to do something, provided the form of cancer we have to deal with belongs to that class, which tends to grow slowly, and has no tendency to early metastasis.

DR. J. A. SAMPSON said that this is a new field and there is much yet to be done. Probably none of us will live to see the work finished. Pathologic study and clinical experience show the importance of a more radical operation. Experience will prove whether it is justifiable. If cases are cured which would not have been cured by a less radical operation, then it is justifiable, otherwise not. A study of the parametrium and pelvic lymphatics shows that, apparently, they are able to check temporarily the further advance of the disease, so that if we can remove these with the primary growth we can hope to cure a certain number of cases where the disease has extended beyond the uterus. When long portions of the vagina are excised the bladder is weakened, and also large raw areas arise, which are difficult to close and less likely to resist infection. In regard to implantation and infection by the abdominal route: After the vagina is freed it is carefully wiped out with gauze and clamped with two right angle clamps and then burnt across between the two clamps with a Paquelin cautery, so that the only time that there is any chance for infection is when the cautery passes through the tissue.

Many think that cancer of the cervix is incurable. Out of 66 patients who have survived the operation and whom we have been able to hear from, over 20 per cent. are free from recurrence after five years and more, and in these patients the diagnosis was made not only from the clinical symptoms, but by the microscope as well. When we see patients free from recurrence, eight, ten and eleven years after operation, and in other cases are unable to find any evidence of cancer in the pelvis of patients dying after operation, we feel that cancer can be cured. Dr. Sampson said that in these cases urine cultures and cystoscopic examinations were made in fourteen after operation, and in two other patients, who died, an autopsy was made and the bladders carefully studied. A diagnosis of cystitis can not be made without such examinations because an apparently inflamed bladder may not yield anything on culture and organisms may be present in the bladder without causing cystitis. We have had cases in which an unfavorable prognosis was made at the time of the operation, but they are apparently cured five to ten years afterward, and in other cases we find just the opposite to be true. Some think that the more cellular the growth, the less the resistance of the surrounding tissues, and on this account the more malignant the disease; but this needs further study. He tried Dr. Downes' thermocautery, but preferred to operate without it. Future experience may show that the thermocautery has a field of usefulness. There is one place in which its use appeals to me, and that is after one has freed the lymphatics and ureters, ligated and cut the ovarian and uterine arteries and utero-sacral ligaments. The uterus is now held in place by the vagina and plexuses of veins, going out from the uterus laterally and posteriorly. The bleeding from the cutting of these veins is always difficult to control. It seems to me that the cautery clamp may be used with advantage in this step of the operation. He tried it in his last case, but it did not work very well. With regard to the post-operative ureteral fistulæ, which close spontaneously, clinical and experimental studies show that usually a ureteral stricture follows the above, frequently renal infection, and sometimes the ureter becomes occluded, for even if the ureter of a dog is cut completely across the fistula may close spontaneously, but the ureter becomes occluded and the kidney is thrown out of function.

DR. CHARLES P. NOBLE said that the suggestion made by Dr. Sampson is a good one. The way to avoid trouble with the clamp is to operate according to his method and finish up the operation with the clamp. Aside from its possible value in sealing the lymphatics and thus preventing implantation during the operation, there is no doubt that the greatest practical value of the clamp is in sealing the numerous veins about the cervico-vaginal regions, thus leaving a dry wound.

DR. PALMER FINDLEY said that he wished to challenge the statement that the microscope will not make a diagnosis prior to the appearance of clinical symptoms. He believes in the microscope in the early diagnosis of cancer because he has had no small amount of experience. It is not altogether improbable that the man who looks through the microscope may be unskilled in its use and in the interpretation of what he sees. In the hands of a capable man the microscopic diagnosis is perfect and may be relied on much more often than the clinical findings. There is not one symptom or group of symptoms which, in early cases of cancer, will make a diagnosis. Instead of operating on suspicion, I would do an exploratory curettage and excise a portion of the cervix and then make a microscopic diagnosis.

THE DIFFICULTIES AND DANGERS OF ACCOUCHEMENT FORCÉ.

A SIMPLE, SAFE AND SUCCESSFUL METHOD.*

HORACE G. WETHERILL, M.D.
DENVER.

That we may reason from a foundation of established basic principles, let us assume that it is generally agreed: 1, That absolute sterilization of the hands from all pathogenic bacteria and spores is impracticable; 2, that the parturient canal is usually free from pathogenic organisms, and that when they are present it is fair to assume that they have been introduced from without; 3, that frequent and prolonged manipulations within the genital canal, and the lacerations and abrasions they produce, vastly increase the dangers of and from infection.

All manual operations for the rapid dilatation of the cervical canal and extraction of the fetus are dangerous, beside being slow and exhausting. The routine use of rubber gloves reduces the risk of infection to a great degree, but they operate somewhat against facility and certainty in the work. Present instrumental methods are also slow and dangerous and demand expensive special instruments, which are often unavailable when most urgently needed.

When the employment of accouchement forcé becomes necessary, it is always for the relief of some serious complication of pregnancy which demands, or at least warrants, the operation and the known risks incident to it. We are confronted with a necessity to make a choice of alternatives, of which the operation, with its attendant dangers, is believed to be the better one.

In making this choice, however, we assume the responsibilities that go with it; and it is encumbent on us to so select and conduct the operative procedure as to reduce the known dangers to the minimum. In the regular course of events these dangers are rupture and laceration of the uterus and vagina, hemorrhage and infection for the mother, and injury and death for the infant.

Immediate success and good ultimate results depend on the simplicity, rapidity and cleanliness of the operation and on the use of the necessary force in exactly the

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* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

best way to avoid injury to the soft parts, hemorrhage, and accidents to the child.

INSTRUMENTS.

It is not the purpose of this paper to consider further the well-known manual methods of accouchement forcé, the advantages, disadvantages and limitations of which are familiar to all.

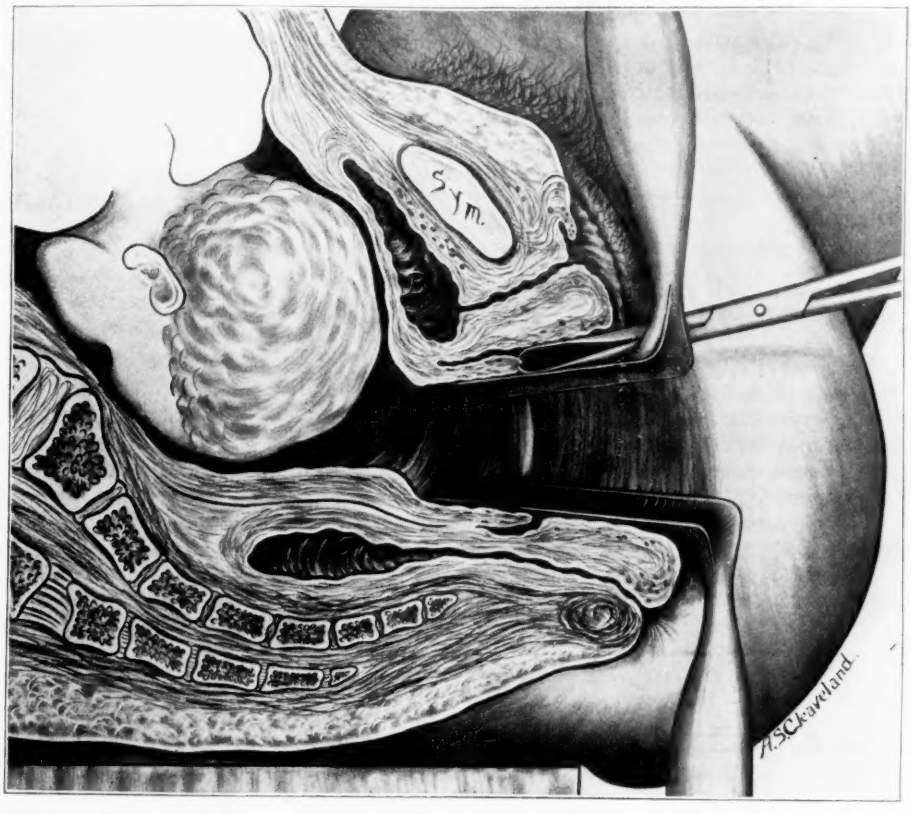
With regard to instrumental methods with various hydrostatic bags, branched metallic dilators, and graduated bougies, I believe it will be conceded that they are slow, cumbersome and unsatisfactory.

The huge, many-branched dilators, like that of Bossi, are expensive, unwieldy and seldom at hand when most needed. Monstrous instruments of this type are, furthermore, offensive to the artistic sense of the skilled surgeon, who associates them in his mind with veterinary practice. It is also unquestionably true that it is not literated, packing with gauze or the use of the hydrostatic bag or some metallic branched dilator of the type of Goodell, Wathen or Starling may be demanded.

When, however, the internal os is dilated or dilatable, and the vaginal portion of the cervix is ready to yield to force such as may be safely and appropriately applied, we have in our armamentarium for this purpose one of the oldest and best instruments known to the gynecologist and obstetrician; one that will apply this force better and more efficiently than any other, an instrument bearing the name of a pioneer of modern gynecology, whom we all delight to honor. I refer to J. Marion Sims and his duck bill speculum.

TECHNIC.

The method I submit for your consideration, subsequent trial, and, I trust, approval, may not be universally applicable; but I am very sure it will be found



easy to estimate the force employed with them, nor are they so perfectly under the control of the operator as they should be.

Such appliances are too suggestive of the crowbar and jackscrew to have a permanent place in modern American gynecologic surgery. It is easy to predict that they will soon find repose in some remote corner where already rest the trephine perforator, the cranioclast and cephalotribe, and to which more recently has been consigned the ecraseur, Tuffier's angiotribe, the 10 and 12 inch hemostatic clamps, and various big vulsellum forceps of horse power hayfork design. American gynecology and obstetrics have passed beyond the stage when such huge instruments are necessary or even tolerable, and the resourceful and dexterous surgeon does not need to employ them. Others should not.

Instruments are necessary in making rapid dilatation of the cervix for immediate delivery; and when the supravaginal portion of the cervix has not been obadaptable to a large proportion of the cases in which acaccouchement forcé is necessary.

In case the supravaginal cervix has not dilated and the external os is still rigid, it will be necessary to employ some instrument as a pilot for the Sims speculum used as a dilator. For this purpose, if time and the nature of the case permit, the gauze packing or hydrostatic bag is preferred; but if not, the Wathen or Starling type of metallic dilators is better.

The cervix being dilated to the diameter of the smallest Sims speculum or retractor available, the farther dilatation is readily, safely and rapidly completed with these instruments. For this operation the patient is fully anesthetized and drawn well down over the edge of the table, in the lithotomy position.

I employ Sims' specula of varying widths and lengths, with flat, shallow blades, the smallest a half inch and the largest two inches broad, and from three to four inches in length. With the exception of the narrowest

one, they are regular stock instruments. Sometimes I have employed for the upper lip of the cervix a long, narrow Eastman or Jackson retractor. Two stout double tenaculum forceps that will not lacerate and tear out of the cervical tissue are also necessary.

The *modus operandi* is as follows: The cervix is caught on either side in its upper outer quadrant with the tenaculum forceps, which are then handed to an assistant. The narrow speculum or retractor, as the case may be, is then slipped into the cervical canal between the tenaculum forceps, and with it the anterior lip of the cervix is drawn forward and upward under the symphysis pubis and held there by a second assistant. Now a Sims speculum with the broadest blade that can be introduced is crowded into the cervical canal, and with it the posterior lip of the cervix is drawn steadily downward and backward, the anterior lip being held forward and upward. Then the operator, grasping the lower end and shaft of the posterior speculum with both hands, presses firmly and steadily downward and backward and rocks the instrument from side to side. In this way he gently but surely and quickly irons out, dilates and paralyzes the cervix under the guidance of his hand and eye, and uses as much or as little force as may be actually required. He need not lacerate or damage the tissues if he proceeds with ordinary care; and in case he should do so he at once knows the extent of the injury.

After both specula are well placed inside the cervix the point of the blade of the upper one should be raised and the point of the lower one depressed to prevent them from slipping out, and the tenaculum forceps must now be removed. The diverging blades of the specula within the cervix will serve to hold it well down in the pelvis, and the strongly held upper one must allow plenty of room for the lower to be moved from side to side through the cervix and over the perineum, which is undergoing dilatation at the same time.

As dilatation progresses, rock the posterior blade well up on the sides of the cervix and have the position of the anterior blade slightly changed to better oppose the force exerted by the posterior. Thus the force is applied always from the center toward the circumference and at a right angle to the axis of the circular muscular fibers of the cervix, while the rocking motion of the broad blade distributes it to advantage.

If there be much hemorrhage the cervix may be tamponed between the blades, or constant irrigation may be employed during the operation.

Technically the method is ideal, but, as suggested, there may be cases to which it can not be applied during the first stages of dilatation. My obstetric practice is limited, and I have not had opportunities for trying the method fully under all conditions; but in the cases in which it has been employed it has worked admirably, and with such facility, safety and speed as to form a delightful contrast to all former methods.

The plan has to commend it the use of only such instruments as may be found in the armamentarium of every physician, uncomplicated instruments, too, and capable of absolute sterilization by boiling. Best of all, they are instruments with broad, smooth bearings for contact with the tissues, which are consequently not exposed to lacerations and abrasions through their use.

During one week of September last it was my fortune to have at the Denver Maternity and Woman's Hospital two very similar cases on which the method was used, one proving so easy and satisfactory as to be astonishing in the facility with which results were attained, and the other presenting difficulties from a rigid and undilated supravaginal cervix and internal os, which served to demonstrate the value of the method under adverse circumstances. Permit me to quote these cases as examples.

Both were multipara. Each of them was found to have her urine loaded with albumin, and the quantity for twenty-four hours was reduced to a very few ounces. The urine of each was highly colored, of high specific gravity, and hyaline and granular casts and renal epithelium were abundant. Partial blindness and other pronounced symptoms of profound toxemia were present in both, though neither had had convulsions. Ophthalmoscopic examination showed well developed albuminuric retinitis, with small hemorrhages in one eye of each patient, and vision was much impaired in both eyes.

The first was at the end of the eighth month of pregnancy, and the second was at eight and one-half months. The fetal hearts were heard to beat strongly and fetal movements were active. No pains or other signs of labor were present, the heads were high in the pelvis and the ora were undilated, just admitting the tip of the index finger. In the first case, however, the supravaginal cervix was obliterated, the cervix was soft and the os dilatable. In the second these conditions did not exist. Immediate delivery by accouchement forcé was determined on for each and was undertaken by the method here outlined.

The first patient was put under full surgical anesthesia, dilatation made, high forceps applied, and a living child was delivered, the record showing the time of anesthesia to have been but twenty minutes.

The second patient was similarly treated, but owing to the unobliterated supravaginal cervix and rigid external os much difficulty was encountered in the preliminary dilatation. When, however, the retractor and Sims' speculum could be introduced the hard cervix yielded readily to the ironing process and was rapidly dilated and paralyzed. High forceps were then used and a living child extracted. Time of anesthesia, one hour.

Both mothers made good recoveries. The child of the second died of uremic toxemia in thirty-six hours, the other being alive and well at this writing. Vision was restored to both women after the lapse of time, but is still somewhat impaired in the worse eye in each instance.

You must take these cases for what they are worth, but I believe that you will grant that, for their kind, they yielded to the peculiar treatment employed with rather more facility and rapidity than could have been hoped for from any other known method. The results, at least, were beyond criticism.

This method has not been sufficiently tried. I submit it for your consideration and use, and for such alterations and improvements as may suggest themselves to you.

Let me beg, merely, that the simple instruments employed be not evolved into one of those gynecologic engines with which our art has been peculiarly cursed.

If I were permitted to take any credit to myself in the formulation and presentation of this subject, it would be for having spared you the infliction of a huge new device to bear my name to the peaceful oblivion of your instrumental scrap heap.

DISCUSSION.

DR. J. H. CARSTENS, Detroit—The question of accouchement forcé is an important one. If a woman has albuminuria and has no convulsions, but there is a probability of convulsions

setting in later on, there is no need of accouchement forcé. That is an ordinary case in which you can bring on labor by introducing the catheter without the exhibition of force, delivering the woman slowly and deliberately in the course of ten or twelve hours. In such a case there is no need to use the Sims retractor, or the Bossi instrument, or anything else of that kind. If you have a case of placenta previa so far advanced in labor that you can introduce a Sims speculum, that woman will die; she would die before you got the os dilated sufficiently to introduce forceps and deliver the head. The use of such a method is a perfect absurdity, especially when the os is dilated so that you can introduce a finger, grasp a foot and pull it down. We should not let this paper go out as being the right thing to do in placenta previa. If the woman has convulsions then you must deliver quickly, unless the convulsion is slight, when the woman recovers from it in a few minutes. Then use the catheter and take your time. But if the convulsions are profound, deliver quickly or she will die. Do not depend on the Sims speculum or the use of any other instrument to dilate the os. Deliver in five minutes, and the only thing to do is vaginal cesarean section, a rapid, simple, yet efficient operation without any disastrous after-effects. In five minutes more you can repair the damage done to the uterus. Anybody can do it in fifteen minutes. That is the kind of accouchement forcé to do.

Dr. Rudolph W. Holmes, Chicago—Unfortunately, we have not as yet an ideal instrument for dilating the os in late pregnancy and labor. An instrument which will satisfy all conditions would be received gladly. The instrumental method advocated by Dr. Wetherill requires three conditions: First, there must be a material dilatation of the os. As a rule, in those cases demanding rapid dilatation, the os is closed. Second, the head must be high up. If the woman is a primipara at term, this condition ordinarily is not present; in multiparæ it usually exists. Third, the cervix must be so lax that it can be pulled down: if the cervix is high up and can not be pulled down, the ordinary Sims specula are not long enough to reach within the internal os. Furthermore, even if the Sims specula were in place, and vulsella held the cervix, there would be great danger of pulling out the vulsella, thereby producing lacerations of the cervix. For the general practitioner there must be a contrivance which is cheap and which all may possess; this, one may say, is a practical impossibility. The hand is always available, and at the present time is the least dangerous ,if properly used, method of dilating the parturient os. Of course we all know there is not any method used in dilating, even the hand, which has not its disadvantages and dangers, but with all the shortcomings, the methods of Harris and Edgar-Bonnaire are the most preferable. A competent assistant may relieve the operator whenever his hands become tired, thus permitting him to become rested before the delivery occurs. In placenta previa this method will be particularly contraindicated, because the tips of the specula will surely separate the placenta and cause an increased hemorrhage. I believe rapid, bloody dilatation of the os is contraindicated in placenta previa. Dr. Carstens is not exactly in the right position, for there are times when a woman is in such a precarious condition that it becomes necessary to deliver rapidly, and in such cases rapid means of dilatation are of inestimable value. I object to the strictures against craniotomy instruments. There always will be use for these instruments. I consider it exceedingly unscientific and little short of malpractice for a doctor to make prolonged and unduly forcible tractions in a vain attempt to deliver a dead baby intact, producing grave lacerations in the mother; or, as too often happens, finally delivering a much mutilated head. A scientific craniotomy is less horrible and offers less liability of producing maternal injuries.

Dr. C. S. Bacon, Chicago—There is need of methods for dilating the cervix in conditions other than eclampsia, but that, of course, is the chief indication for removing the child. The vaginal cesarean section, as advocated by Dr. Carstens, undoubtedly is preferable to any method of rapid dilatation of the cervix, provided you have the facilities for doing the operation. In the majority of cases these facilities are not at hand, hence arises the necessity for rapid dilatation to be followed by removal of the child, in certain cases. The question is whether the method proposed by Dr. Wetherill is better than the method that we now chiefly employ, manual dilatation. The instrument of Bossi has never been in favor in this country, and is now losing favor in Europe on account of the tears made by it. The method of manual dilatation as described by Harris and Edgar in this country, and Bonnaire in France, unquestionably is the best at the present time. Now, is Dr. Wetherill's method better than manual dilatation? One would suppose that there was risk of injury to the tissues by grasping the cervix with a tenaculum forceps and pulling it up against the symphysis, followed by pressure made with the speculum from behind. That danger would not be present in the use of the hand. Now, is it any cleaner? The hand may be made clean, if one has the time, or gloves may be worn. The greatest danger is the introduction of contamination from outside, and that is the chief danger of the Edgar method. But the same danger applies here; the manipulation with the speculum posteriorly must be involved with considerable contamination from the anal region. That is where the chief danger lies, and it is quite as great in the Edgar method, and much more dangerous than the use of the one hand, the method of Harris. So that I doubt that this method possesses any real advantage over the others.

Dr. Charles J. Hastings, Toronto, Canada—We are not quite so fond of instruments in Canada as they are in some other places. I feel that there is no other method to compare with digital dilatation, as suggested by Harris with gloved hands, for the safety of the mother; and the means by which it is accomplished is always at hand. In my opinion the only condition demanding "accouchment forcé" is severe concealed accidental hemorrhage, in which case the uterus must be emptied as rapidly as possible or we will lose our patient. With regard to eclampsia, I can not agree with Dr. Carstens as to rapid emptying of the uterus, even in the eclamptic seizure. I prefer to control the convulsions with morphin and chloroform and when the patient is under the influence of these drugs, empty the uterus. Operative interference before this is done only intensifies the seizure. In placenta previa, in my opinion, accouchement forcé is positively contraindicated. How very easily we could produce a fatal issue from an incontrollable hemorrhage by producing even a slight laceration, owing to the changed condition of the parts, the enormously enlarged vessels at the placental site. While some of the more rapid methods of dilatation may possibly diminish the infant mortality yet, for the aforesaid reasons, I should be afraid to adopt them.

Dr. Henry D. Fry, Washington, D. C.—Two weeks ago, in Boston, at the meeting of the American Gynecological Society, Dr. Harris presented an instrument for rapid dilatation of the cervix. I mention this merely to show that Dr. Harris, whose method of manual dilatation is so popular, has seen fit to get up this ingenious instrument to take the place of his manual method. We all have in mind only one single method, to the exclusion of all others. That is wrong. We should not attempt to use one method in all cases. In dilatation, the most difficult part is to start it, and here the difference is great between multipara and primipara. Dr. Wetherill's cases were multiparæ, and, as a rule, the multiparous cervix is dilated easily, either manually or instrumentally. I believe that there are some cases of multiparæ in which this is an efficient and simple method, far better than the use of any instrument. In primiparæ the hard part is starting dilatation, and here Dr. Wetherill's instruments would not be of much use to us. I agree with what has been said in regard to not using any of these methods for dilatation in placenta previa. The mortality of that condition has been brought down so far by bipolar version, that it would be retrogression to go back to any of the older methods. The maternal mortality will be higher, although we may save more children. Each method is applicable to certain cases, but in the majority of cases I prefer to use the manual dilatation.

DR. H. G. WETHERILL—It is not possible to listen to a paper of this kind without having some misapprehension as to the exact field it proposes to cover. That has occurred, apparently, in the mind of almost every one who has discussed this one. Dr. Carstens seems to have lost sight of the fact altogether that the two cases reported were operated on for retinal hemorrhages and albuminuric retinitis, which are accepted as a justification for immediate delivery by every obstetric authority. In regard to the degree of dilatation that is necessary: The ordinary Bossi instrument measures 1⅛ inch across the end which is introduced, and it is circular, so that its circumference is something more than three inches. If, then, it is possible to use the Bossi dilator in any case, it is also possible to use the Sims specula, as I have advocated their use on this occasion. As to the hand: We all acknowledge that absolute sterilization of the hand is impossible, and that there is always a residuum of infection that goes with the hand into the vagina and which the tissues and secretions must take care of. We know how impossible it is to cleanse the hands and keep them clean throughout an entire obstetric operation, notwithstanding the fact that these cases often are seen in the hospital, under the most favorable circumstances, so that the hand always carries with it a certain danger, which is not carried by smooth, polished instruments. Dr. Bacon also had a misapprehension in regard to a very specific direction given in the paper.. I did not say that a vulsellum forceps should be used to grasp the anterior lip. I said that the upper outer quadrants of the cervix should be grasped with forceps and drawn down until the specula could be introduced, and then the forceps be taken off, thus avoiding the possibility of a laceration of the cervix. It is very easy to listen to a paper of this kind, which presents only simple methods, and offer theoretical objections. I say simply this: Here is a method which has served me admirably; it may serve some of you a good turn at some time, and I am glad to suggest it to you, so that if opportunity occurs you may try it. It must be remembered that the obstetric and gynecologic specialist is not the only person to be considered. General practitioners often require methods which Dr. Carstens or Dr. Bacon might not think of using, and while this method may not appeal to Dr. Carstens, it may find a field of usefulness in the hands of some other practitioner, who may save a life with it. Perhaps I may be permitted to remind the Section that Dr. Oliver Wendell Holmes once wrote an essay on the contagiousness of puerperal fever. The rather conservative body of medical men whom we now represent were a generation in grasping and accepting the opinions which Dr. Holmes promulgated in 1844. It was more than fifty years before his views were practically applied. That is a sufficient commentary on your tendency to criticise severely certain things, while, on the other hand, you grasp at others, principally operative measures, with great avidity.

ANEURISM OF THE INNOMINATE ARTERY.*

ALBERT P. FRANCINE, A.M., M.D.
Instructor in Medicine, University of Pennsylvania; Fellow of the College of Physicians of Philadelphia, Etc.
PHILADELPHIA.

My interest in aneurism of the innominate artery was stimulated by a case which came under my observation in the medical dispensary of the University Hospital in December, 1901. After studying the symptoms and physical signs of this case for several months, I presented the patient before the medical society of the University of Pennsylvania, and my diagnosis was very generally concurred in.

It must be admitted, however, that "experience is fallacious and judgment difficult," and that in the last analysis we must go to the postmortem room for confirmation of such diagnoses. I, therefore, proceeded with the study of my subject there, and was able to collect eight cases.[1] In but one instance in this series, and in that case only tentatively, had the correct diagnosis been made, and the question naturally presented itself as to whether there existed in these cases such clinical obscurity as to warrant this apparent difficulty in diagnosis.

Proceeding, therefore, further in my study with the idea of at least satisfying myself on this point, I had recourse to the literature of the subject; and after collecting and analyzing in all 147 cases of these interesting morbid growths, where, in many instances, the correct diagnosis had been made clinically, a more definite clinical picture formulated itself which I have the honor to present herewith.

ANATOMY.

Before taking up the subject proper of this paper it will, perhaps, be well to review briefly the anatomic features involved. The accompanying chart (Fig. 1) shows well the relation of the arch and its great vessels to the chest wall. It will be seen that the arch[2] of the aorta begins from the upper part of the left ventricle opposite the lower border of the third costal cartilage, behind the left half of the sternum, and passes obliquely upward, forward and to the right, in the direction of the heart's axis, as high as the upper border of the second right costal cartilage. This is the ascending portion of the aorta, and is covered by the pericardium. From this point the aorta passes backward and to the left, to the left side of the lower border of the fourth dorsal vertebra. This is the transverse portion or arch and it is from this portion that the innominate artery and the left common carotid and subclavian are given off. The aorta from this point passes downward, lying in close proximity to, and to the left of, the spinal column, to the aortic opening in the diaphragm in front of the last dorsal vertebra (descending portion), where it becomes the abdominal aorta.

The innominate artery, its axis and position being well shown in the chart, is the largest of the three vessels arising from the arch. It arises from the lower portion of the arch, opposite the first intercostal space behind the left half of the sternum in front, or the fourth dorsal vertebra behind. It ascends obliquely to the right sternoclavicular articulation, where it divides into the right common carotid and right subclavian arteries. It varies from one and a half to two inches in length. The axis of this vessel is approximately that of the heart, and follows a line from the middle of the sternum opposite the lower border of the third costal cartilage to the right sternoclavicular articulation.

In front it is separated from the first bone of the sternum by the sternohyoid muscles, the remains of the thymus gland, the left innominate and right inferior thyroid veins which cross its root, and sometimes the inferior cervical cardiac branch of the right pneumogastric. Behind, it lies on the trachea, which it crosses obliquely. On the right side is the right innominate vein, right pneumogastric nerve, and the pleura; and on the left side, the remains of the thymus gland, the origin of the left carotid artery, the left inferior thyroid vein and the trachea.

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1. Trans. Phila. Path. Soc., vol. i, p. 42; vol. v, p. 103; vol. vii, June, 1904, p. 190.

2. For a masterful and complete description of the anatomic relation of the aorta and its branches, together with a full account of anomalous conditions, see Krause's article in Henle's Anatomy, vol. iii, p. 203.

The innominate artery does not usually give off any branches, but occasionally a small branch, the middle thyroid, is given off from this vessel. It also sometimes gives off a thymic or bronchial branch.

When the bifurcation of the innominate varies from the point above mentioned, it sometimes ascends a considerable distance above the sternal end of the clavicle; less frequently it divides below it. In the former class of cases its length may exceed two inches, and in the latter be reduced to an inch or less. When the aorta branches over to the right side, the innominate is directed to the left side of the neck instead of the right.[3]

PHYSICAL SIGNS AND SYMPTOMS.

The position of these aneurisms is, perhaps, their most striking clinical feature. Corresponding to the position and axis of the innominate artery, these growths are situated at the root of the neck, more on the right side than on the left, and frequently extending above the right clavicle and suprasternal notch. They point behind the right sternoclavicular articulation, to the inner side of the sternocleidomastoid muscle, often dislocating the sternal end of the clavicle where their pulsation can be distinctly felt. For an aneurism of the aorta to reach so high, it must have attained great size, or else there must be an anomalous position of the arch itself. In either event there is wanting another distinctive sign of aneurism of the innominate, namely, an angle of re-entry on the external and inferior aspect of the growth, in or above the second interspace. This angle of re-entry, to which attention has not been previously called, separates aneurism of the innominate artery from those of the ascending or transverse arch, which so frequently point in the second interspace to the right. When the aneurism is so large as to involve the arch itself, this angle of re-entry is not an available sign. It is not common, however, for these growths to attain such size as to involve the arch in their growth, unless they originally spring therefrom. They usually are not larger than a lemon, though they may be as large as an orange and reach to the cricoid cartilage, or even attain still greater dimensions as in a case reported to the Philadelphia Pathological Society by Dr. Robertson,[4] in which the aneurism was as large as a fetal head.

These aneurisms vary in size from time to time, increasing and diminishing quite remarkably. They nearly always dislocate, to a greater or less extent, the sternal end of the right clavicle, which is elevated by each pulsation of the tumor. They are more superficially placed than aneurisms of the arch, and consequently the evidence of their aneurismal nature is, as a rule, readily demonstrated. They can always be palpated above the right sternoclavicular articulation and in the suprasternal notch. In this latter situation the expansile character of the pulsation, as well as a thrill, diastolic shock and bruit, may be easily appreciated; while often they are accompanied by a marked tracheal tug, being usually adherent to the trachea.

In fully one-half the reported cases the trachea was compressed, producing cough. This may be dry, brassy and frequent, or paroxysmal and associated with hoarseness and aphonia. In a majority of the cases there was a mucopurulent expectoration and sometimes traces of blood.

Dyspnea in nearly all cases is a marked symptom. It is usually for this, or pulsation and pain at the root of the neck, that these patients seek medical advice. The pain complained of may be dull and aching, and confined to the sac itself, or sharp and lancinating like an angina pectoris, but referred entirely or almost wholly so to the right side of the neck and shoulder. These patients may be free from pain much of the time, and they frequently have very good days, when the size of the tumor is reduced and the dyspnea and pain have almost disappeared. Again, they may suffer greatly, the pain and dyspnea being made worse by emotion, bodily exertion or temporary ill health.

Edema, particularly affecting the right side of the face and neck, may be a symptom. The right side may be colder than the left, and rarely, numbness and even paralysis in the right arm supervenes from pressure. The right external jugular vein often stands out turgid and prominent, and a slightly darker hue is noted over the right side of the neck from venous stasis.

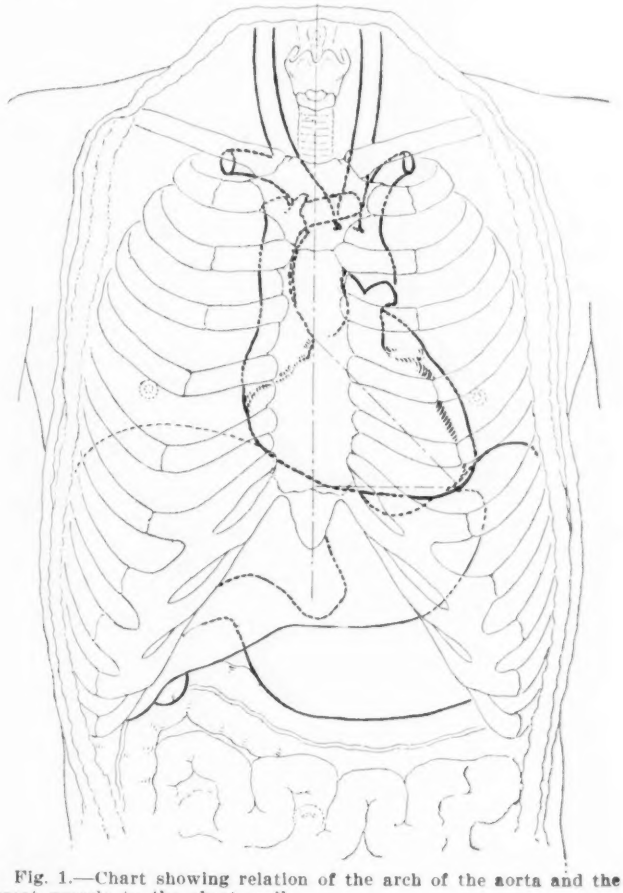


Fig. 1.—Chart showing relation of the arch of the aorta and the great vessels to the chest wall.

Dysphagia is not a frequent nor a marked symptom, having been noted in not more than a quarter of the cases. Curiously enough, as the aneurism increases in size, this symptom, if present at first, is apt to grow less or even disappear, because the tumor in its growth extends upward and outward, pushing the clavicle before it and freeing itself from the resistance offered by the sternum.

Inequality in the radial pulse is usually readily demonstrable, the right being the weaker. Pulsation in the subclavian, axillary, brachial, carotid and temporal arteries on the right is less marked than in the corresponding arteries on the left, or it may be altogether absent. The latter is particularly apt to be the case in

3. The above anatomic description is taken principally from Gray. The chart is original.
4. Trans. Phila. Path. Soc., N. S., vol. ii, p. 269; vol. xviii, p. 25.

the right temporal artery, which seems, in many cases, to be more affected than even the right radial. There may be noted in some cases a lengthened interval between the heart's systole and the stroke of the pulse in the right radial, which is very suggestive; and in my own case I noted a peculiar regurgitant quality in the right pulse at the wrist which was absent in the left. This difference was well shown in a sphygmogram, and was very suggestive. It might possibly be due to the position of the aneurismal sac, which, not being continuously distended with blood, may act in a measure like or be considered analogous to a diminutive heart with incompetent valves. If this quality of the pulse is present in aneurism of the arch, it is apt to be felt in both radials.

Fig. 2.—Philadelphia Hospital case. Aneurism of arch of the aorta.

The auscultatory signs over these aneurisms, except in their higher position, are not distinctive. There may be a systolic murmur of variable intensity transmitted into the vessels on the right side and accompanied by a thrill. More rarely a double murmur is heard, usually associated with disease of the aortic valves.

There are certain respiratory signs, to which I wish to call attention, which have not been heretofore described in this connection. These result briefly from the compression exerted by the aneurism on the apex of the right lung, and consist in an area of impaired resonance with increased tactile fremitus, and diminished or distant breath sounds, immediately adjoining the tumor; while adjacent to this area of compressed lung is an area of hyper-resonance with diminished tactile fremitus due, no doubt, to vesicular relaxation.

DIFFERENTIAL DIAGNOSIS.

Some of the more striking differences between aneurism of the innominate artery and aneurism of the arch may thus be briefly summarized: In nearly all cases of aneurism of the innominate there is a more or less pronounced external tumor on account of the more superficial position of the growth. The higher position of this tumor in innominate aneurism is significant, reaching into or above the suprasternal notch and behind or above the sternal end of the right clavicle. The latter is usually dislocated and pulsates with each beat of the heart. The larynx or trachea is more apt to be dislocated or compressed in aneurism of the innominate than in aneurism of the arch, but the esophagus is not so often compressed in the former as in the latter condition. Venous congestion, if present, is more apt to be general in aneurism of the arch, while involving the right side in innominate aneurism. The dyspnea is greater and the alterations in voice apt to be more marked in innominate aneurism.

The pain in aneurism of the arch is lower down, over the middle or lower sternum, and transmitted to the left or bilaterally like an angina pectoris. In innominate aneurism it is referred to a region higher up, corresponding to the aneurismal sac, and transmitted to the neck, shoulder and arm on the right side. Edema or impaired sensation, numbness or loss of power confined to the right arm is very suggestive of innominate aneurism. It is more apt to be general in aneurism of the arch. Pressure symptoms from involvement of the right sympathetic or right recurrent laryngeal nerves, while not rarely present in innominate aneurism, are not in themselves distinctive.

Rarely both signs and symptoms are remarkably indefinite, especially where the growth is small, or occasionally when the aneurism springs from the arch, as in a case reported to the London Pathological Society by Christopher Heath,[5] in which the "inner end of the right clavicle was thrust forward and the interclavicular notch obscured and the aneurism had perforated the sternum close to the sternoclavicular joint." In the belief that it was an aneurism of the innominate artery, the right subclavian and right common carotid were ligated. The aneurism subsequently ruptured and the innominate artery was found healthy; the sac of the aneurism sprang from the ascending arch of the aorta.

When these aneurisms involve the arch, or in those rare instances where both the arch and the subclavian artery is involved,[6] the clinical picture of uncomplicated innominate aneurism is not presented.

In conclusion, it may be said that a delayed and weakened beat in the right radial, absence of pulsation in the right temporal, a turgid external jugular, in association with paroxysmal attacks of dyspnea and pain at the root of the neck, or referred to the right side, are all very suggestive of innominate aneurism. The two signs to which I would like to call special attention, and which, so far as I am aware, have not been described before in this connection, are the regurgitant quality in the right radial pulse and the angle of reentry in the second interspace. The presence of these

5. Trans. London Path. Soc., vol. xxi, p. 132; vol. xxv, p. 117.
6. Trans. London. Path. Soc., vol. xiii, So.

in association with the signs of aneurism in the suprasternal notch and behind the right sternoclavicular articulation are pathognomonic of innominate aneurism.

PROGNOSIS AND TREATMENT.

As a rule, unless relieved by operative measures, these aneurisms sooner or later rupture A very rare occurrence is spontaneous organization of the clot.[7]

Operative measures are not unattended by danger,

Fig. 3.—Episcopal Hospital case. Aneurism of the arch of the aorta.

which has been much reduced since the introduction of asepsis and modern surgical methods. It is always well to try palliative treatment at first, consisting in measures directed to reduce blood pressure and favor coagulability of the blood, aided by distal pressure. The earlier statistics of distal ligation for these growths are not particularly valuable on account of the dangers attending operation *per se*, while later statistics seem to show that it has been attended by recovery and cure in more than three-quarters of the cases.

The operation consists in distal ligation of the right common carotid and subclavian, one or both, either consecutively, if it should prove necessary, or at the same time. This procedure was first suggested orally by Brasdor of Paris, but the operation itself was never performed by him, so that it has come to be associated with the name of Wardrop of London, who performed it in several cases of innominate aneurism.

Fig. 4.—Pennsylvania Hospital case. Aneurism of the arch of the aorta.

In uncomplicated cases it has proved highly successful, the sac becoming speedily obliterated by organized clot. When the aneurism is more extensive and involves the arch of the aorta, this operation is not unattended by danger from the extension of the coagulum into the lumen of the aorta, thus blocking off the circulation. This accident happened in a case reported to

7. Trans. London Path. Soc., vol. ix, pp. 95, 167.

the London Pathological Society,[8] death ensuing on the sixth day after the operation.

In regard to the literature, reference must be made to Holland's Monograph[9] on "Aneurism of the Arteria Innominata," in which he collected a series of 46 cases from a review of the literature to date. Since that time several statistical papers have appeared on the subject, notably that of Wyeth,[10] in 1881, and of Rosenstern,[11] in 1886. Winslow[12] followed in 1893 with an extensive paper dealing with the symptomatology of these growths and their operative treatment. He made use of Wyeth's and Rosenstern's statistics, and collected in all 83 cases, 10 of which were included in Holland's paper, which seems to have escaped him.

I found 11 cases in the Transactions of the London Pathological Society, 4 in the Philadelphia Society, 2 in the New York Society, and 2 additional cases referred to by Ashhurst[13] in his Surgery, and not included in any of the above series. Hirschman[14] of Detroit also reports a case. The above cases, with my own series of 8, make a total of 147 cases.

Except in isolated instances, no attempt was made to review the pathologic and surgical literature in German, French and Italian, as this seemed to little purpose. The collection of a more or less complete list of the reported cases would have been interesting, but not necessary to my purpose of deducing from the clinical notes, the symptoms and physical signs. The above series of cases was already sufficiently large and detailed both for that purpose, and also to give in a general way some idea of the frequency of these aneurisms.[15]

NECROSIS OF THE BONES OF THE FACE.*

STEWART L. McCURDY, M.D.

Professor of Orthopedic and Clinical Surgery, West Pennsylvania Medical College; Professor of Anatomy, Oral and General Surgery, Pittsburg Dental College; Orthopedic Surgeon Presbyterian Hospital; Surgeon P., C., C. & St. L. Railway.

PITTSBURG, PA.

Pathologic changes about the tissues of the face resulting in death of bone are most common. It is quite usual for the dentist to remove portions of bone during the management of pyorrhea alveolaris and other suppurative conditions about the teeth. A cardinal symptom suggestive of beginning destruction of bone is swelling that pits on pressure, or what is known as edema. When this is found either on the alveolar process or tibia, a careful study of associated symptoms should be made, since it is on the proper and early management of such cases that the subsequent history depends.

When the existence of a periostitis is fully determined a free incision should be made down to the bone, for just so soon as the colony of bacteria that is causing the trouble is reached and disconcerted, their activity ceases and repair begins. When, however, myriads of bacteria are permitted to go on and multiply and destroy living cells, destruction is relatively great. The early treatment would appear to be applications of iodin and heat or ice, to be followed by incision in two or three days when no improvement is obtained from these remedies.

Syphilis as an etiologic factor should always be thought of, for in these cases radical operation should never be made, but instead, specific medication should be instituted.

To further emphasize the course of treatment and results in these conditions, a few typical cases are appended:

CASE 1.—H. H., male, aged 30, presented himself with a mouth converted into a pus basin. This putrescent condition had existed for many months. He had had a chancre four years before, but this history had apparently been overlooked, for specific medication had not been administered. An examination revealed a denuded left mandible from symphysis to condyle.

Fig. 1.—Outside of half of bone removed.

Operation.—There was nothing to be done but to operate. The first step required the removal of the entire left body. It was with some difficulty that the tissues were dissected back from the bone so as to permit its removal. Owing to the advanced process of decay the body was broken in three pieces. The angle and ramus were found also to be detached, but were included in the tissues, so that they could not be removed until a dissection was made from the position of the last molar upward, toward the coronoid process. This was done through the mouth with a pair of Cryer upper universal tooth forceps; the ramus was removed without great difficulty, the bone coming away in two fragments. It included the entire body, with the ramus coronoid process, sigmoid notch and the neck of the condyle, the condyle alone remaining on the left side. That portion of the symphysis not included in the specimen had disintegrated and was removed by curettement (Fig. 1).

Results.—Hemorrhage was extensive but this was controlled by packing, which was allowed to remain for forty-eight hours. Careful packing was required for several weeks, so as to keep the remaining half of the bone in as near a normal position as possible until reproduction of new bone has so far advanced as to bridge the chasm from the remaining condyle to the symphysis.

The ultimate result may be seen by studying Figure 2. Articulation between the teeth in the remaining half of the mandible and those in the corresponding maxilla is as near perfect as is possible. The wound itself repaired without incident under specific medication.

8. Trans. London Path. Soc., vol. xix, p. 93.
9. T. S. Holland: Dublin Quarterly Jour. Med. Sc., February and May, 1852.
10. Amer. Jour. Med. Science, January, 1881.
11. Rosenstern: Archives of klin. Chirurg., 1886, p. 49.
12. Winslow: Annals of Surgery, May, 1891; a series of 83 cases, 10 of which were included in Holland's.
13. Ashhurst: Surgery, sixth edition, 1893: 2 cases of interest.
14. Hirschman: Report of a case.—THE JOURNAL A. M. A., Aug. 16, 1902.
15. Other references which may be consulted are as follows: Wardrop: "Aneurism." Christ: "Diseases and Injuries of Blood Vessels." The inaugural dissertations of M. Kings, 1828; M. Poyers', No. 100, 1839; M. Beisteguis', No. 195, 1841; M. Lesage de La haye, No. 58, 1845. M. Velpeau: On aneurysm in Dictionnaire de Medicine, vol. xxviii, p. 466. Amer. Jour. Med. Science, July, 1847. 1856. Trans. New York Path. Soc., vol. i, p. 144, 155. M. Roberts: "Sur les Aneurysms de la region sus-claviculaire, 1842." M. Dubreuil: "Observations et Reflexions sur les Aneurysmes de la Portion Ascundate and de la Crosse le l'aorte, 1841." Rush: Thedretisch-praktisches Handbuch der chirurgie, vol. ii, 1857.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

This case illustrated that many extensive incisions are made through the tissues of the face for operations on the mandible and bones of the face that could be done through the mouth. Figure 3 shows that no deformity of the face is present either from unnecessary incisions through the face or from loss of bone.

Figure 2.

Figure 3.

Case 2.—G. W., aged 40, had a history of chancre eight years before the beginning of the present trouble, with an intermission of perfect health. The exciting cause of the present trouble was a suppurative peridentitis.

Operation.—I examined him and decided on an operation on the following day. After carefully dissecting back the flaps of soft tissue, including the periosteum, requiring incisions in two or three directions, the left maxilla was removed. This included the antrum and lateral nasal wall. Further curettements removed fragments representing practically the entire right bone below the floor of the orbit, making the cavity formerly occupied by the right maxilla continuous with the right nasal cavity and the mouth. The hemorrhage was quite extensive, but was controlled with gauze packing.

Results.—Under specific medication the wound entirely repaired in three months. Packing was necessary all this time,

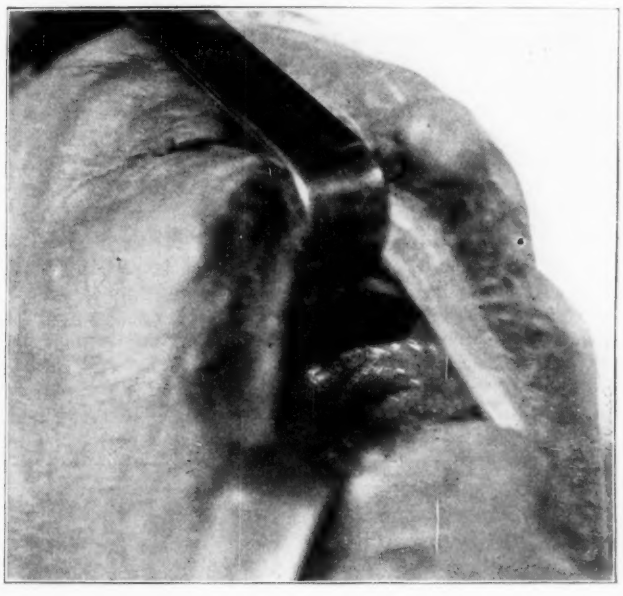


Figure 4.

and took the place of the roof of the mouth so well that there was little defect of speech; indeed, so little that his family never knew that he had undergone an operation. The operation was done through the mouth. The patient left the hospital on the fourth day. An artificial denture restored the voice perfectly, and, but for the nasal secretions falling into the

Figure 5.

mouth, he suffers no inconvenience. Medication was continued for one year. Figure 4 shows the case after complete recovery.

Case 3.—H. M., aged 29, had a chancre eight years ago without usual history and no tertiary symptoms until two years ago, when he had beginning destructive disease of the nasal septum, which gradually extended to the nasal bones and roof of

the mouth. In spite of what it is reasonable to suppose was good treatment, the destruction continued and would, no doubt, have destroyed the entire maxilla had not treatment been faithfully carried out. The destruction ceased and repair of the ulcerative surfaces was complete in one year. The case presented a most extensive destruction. The bones in the roof of the mouth and nasal cavity were so destroyed as to freely expose the base of the skull. The ethmoid cells were destroyed well up to the cribriform plate. At no time, however, were there any cerebral symptoms (Fig. 5). A vulcanite prosthetic appliance attached to a set of teeth enabled the man to talk well.

CASE 4.—A woman, aged 50, had a severe supposed toothache in her left lower third molar. A competent dentist made an examination and decided to extract. This was done, but was not followed by relief from pain. The case came to me three weeks later, the patient suffering most intensely. A thorough examination with a probe showed that the external surface of the mandible from the second molar to the angle, and for a space of a square inch, was completely denuded of periosteum. The disease had also extended over the process to the internal surface of the bone, about half way down. The suffering, while quite severe at all times, was more intense at night. I had treated a so-called tubercular bone disease in another member of this family that made a most satisfactory improvement under systemic medication, so it was concluded that a systemic taint was the principal factor in the case under treatment. After opening up, through the mouth, the entire diseased areas were removed and the portion of the process that was denuded on both sides chilled away; the sinuses were curetted and flushed with pure tincture of iodin and packed. Mixed treatment was pushed vigorously and the wound dressed daily. Some small fragments of bone were removed during the following month. Pain disappeared in about one week after the operation. The wound healed in two months, and there has been no recurrence. The medication was continued, however, for eight months.

DISCUSSION.

DR. EUGENE S. TALBOT, Chicago—Has Dr. McCurdy noticed in his cases that the maxillary bones and the bones of the face and nose are more often involved in syphilis than other bones of the body, and if so, can he give a reason?

DR. M. L. RHEIN, New York City—I have heard that in one dental society it is the duty of a dentist never to attend a syphilitic case. Of course, we as stomatologists can not for one moment do anything but condemn any such outrageous doctrine as this. Dr. McCurdy has spoken about the non-surgical interference, but there are cases in which minor surgery becomes necessary for the perfect restoration of the health of the mouth, and this very question of sterilization of the mouth means a removal of the debris. This necessarily becomes surgical work, and it is in this position that the stomatologist so often places himself in a position not only of endangering himself by infection, but others, if sterilization is not thoroughly carried out. In all suspected cases my practice has been to use carefully on the patient, not only a mouth wash prior to operation, but also a spray of bichlorid of mercury. I do not believe that anything short of this agent is at all available in these cases. From memory I would say that in the last year I have had at least 20 cases with well-defined syphilitic history.

DR. MCCURDY—In answer to Dr. Talbot, I think that in diseased conditions and operations about the teeth there are more chances for mixed infection to occur because the majority of people do not take proper care of their teeth. I observe this especially because my practice includes general as well as oral surgical cases. Students in infirmary work at college frequently refuse to operate on cases with facial eruptions, and especially those with tertiary syphilis, because they fear that they may become infected.

DR. RHEIN—The cases I referred to were in the secondary stage, where the treatment was about ended. I only want to draw the line of distinction.

DR. MCCURDY—This matter has been definitely settled. In the third stage of syphilis it is impossible to become inoculated unless the destructive stage begins before the second stage ends. As you understand, there is, as a rule, an intermission of perfect health between the second and third stage, and it would be a rare condition for the second stage to extend over into the tertiary or destructive stage. For this reason the operator has very little chance of becoming inoculated in operating on destructive bone diseases of syphilitic origin, even when rubber gloves are used.

PROSTATIC OBSTRUCTION TO URINATION.

WHEN TO OPERATE AND HOW TO OPERATE.*

PARKER SYMS, M.D.
NEW YORK.

After fifty years of age one man in every nine is the subject of pronounced prostatic hypertrophy. About 20 per cent. of these show symptoms more or less marked.

Hypertrophy of the prostate, producing obstruction to urination, is the cause of the greatest suffering which men are called on to bear. In a typical case where cystitis is established the agonies endured by the patient are often beyond description. It is a fact to be recognized that prostatic obstruction of the severer type is surely, though often slowly, a fatal disease. Fortunately, the attention which surgeons have given to this subject in the last few years has resulted in the evolution of its treatment, so that to-day we can offer to these sufferers a safe and sure plan of treatment which results not only in the relief of the painful condition, but in its actual cure and in permanent correction of the anatomic condition which was the cause of the symptoms.

In this paper I shall not enter into consideration of the etiology of prostatic hypertrophy, nor shall I touch on the pathic conditions more than is necessary to explain their practical importance, and also to show the rationale of the treatment which has been found to be the best.

SYMPTOMS.

When obstruction to the outflow of urine by an enlarged prostate has reached a certain stage, changes take place in the structures of the bladder and in its function which lead up to the period when the patient's real suffering and danger become pronounced. During the earlier period, when there is mere impediment to the outflow of urine, compensatory hypertrophy of the bladder muscle takes place, which for a time may apparently overcome or counterbalance the obstruction to the outflow. Later the hypertrophied muscle degenerates and atony supervenes, giving place to dilatation of the bladder in many cases. It is then that the bladder becomes unable to completely empty itself, and a certain amount of urine is retained in the bladder, that is to say, a certain amount of residual urine, and this becomes one of the chief aids to infection which is liable to take place in every case. Of course, the presence of residual urine does not always depend on atony or dilatation of the bladder, but it will be found in any bladder when the obstruction to the outflow is sufficient to impede the effectual emptying of the bladder. In certain cases there is rather sudden complete obstruction to the outflow of urine as the first indication of this trouble. In many cases the obstruction and the impediment are manifested slowly, so that there is a retarded and, therefore, a pro-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. DeForest Willard, Charles A. Powers and J. E. Moore.

longed act of urination. As the emptying of the bladder becomes more and more impeded, the act is necessarily oft repeated, and we have that very prominent symptom of prostatic obstruction, namely, frequency. I wish here to speak not too fully of the symptoms, but to describe what are, in my opinion, the indications calling for surgical relief, and later to describe what is, in my opinion, the best means of affording this relief to the patient.

DIAGNOSIS.

The diagnosis of prostatic obstruction should be made in the simplest possible manner. In a patient fifty years or more of age any pronounced change in the act of urination should lead one to suspect prostatic obstruction. A carefully taken history of the case will put one entirely in possession of the subjective conditions, and no examination should be made beyond palpation of the prostate through the rectum and the very careful introduction of a flexible catheter into the bladder, after the patient has urinated, for the purpose of determining the amount of residual urine and the quality of the same.

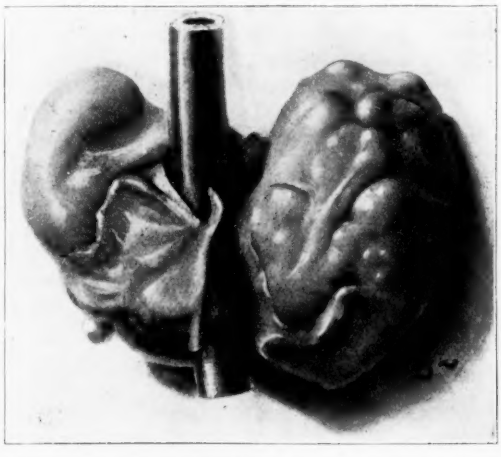


Fig. 1.—Actual size. Showing lateral lobe enlargement.

Fig. 2.—Actual size. Showing lateral lobe enlargement with median bar.

CYSTOSCOPE.

I can not speak too strongly against the employment of the cystoscope in these cases. I regard a cystoscopic examination of a prostatic patient who is suffering from more or less severe cystitis as a thoroughly unwarranted procedure, and as far more dangerous than a properly performed removal of the prostate through the perineum.

As an example of this I would quote a patient who was examined by the cystoscope, and as a result lay at death's door for fourteen weeks. Last fall his prostate was removed, affording him complete relief from his prostatic obstruction. He was up and walking about at the end of forty-eight hours and was never in a condition of danger.

METAL CATHETERS.

Again, I can not speak too strongly against the employment of metal catheters either for examination or for the purpose of withdrawing urine from these patients. More lives have been sacrificed to the silver catheter in cases of prostatic hypertrophy than can be computed. It is an instrument which never should be used. Before operation, the introduction of a metal instrument into one of these bladders is dangerous. When one can not succeed in introducing a soft catheter a Mercier catheter should be used, and if this can not be introduced without undue difficulty, it would be safer to do a perineal section on the patient at once rather than to subject him to prolonged manipulation which, if unsuccessful, would result in more or less damage, and to a risk of extravasation and all its disastrous consequences.

All that is needed in these cases is a sufficient working diagnosis, and the surgeon should abstain from attempting to make a too minute diagnosis by an unnecessarily extensive examination; for instance, if it be determined that a patient has prostatic obstruction which is doing damage to the bladder, or which has resulted in marked cystitis, and if stone be suspected, it is unwise to introduce even a searcher to accurately determine its presence or absence, for we already have sufficient indication for operation, and if there be a stone it can be readily found at the time of operation and at once removed by the aid of crushing, if it be large, or simply with forceps, if it be small.

Fig. 3.—Actual size. Three lobe and isthmus type.

WHEN TO OPERATE.

Frequency.—When a patient is suffering from obstruction which necessitates very frequent urination to a degree which entails exhaustion, he requires relief.

Catheter.—When the obstruction requires the habitual use of the catheter the patient is safer to have a radical operation performed than to enter on or to continue in the so-called catheter life.

Cystitis.—When the patient suffers from repeated attacks of acute cystitis, or when he suffers from a marked degree of chronic cystitis, he will be safer if radically operated on.

Stone.—When bladder stone is caused by prostatic obstruction, I feel that the patient should have a radical prostatic operation performed, because if mere crushing of the stone is resorted to, stone will reform unless the obstruction to the outflow of urine is removed, and because the radical operation, to be later described, is so safe that it adds little or nothing to the risk which a patient runs beyond the danger of the anesthetic.

Hemorrhage.—When frequently repeated hemorrhage

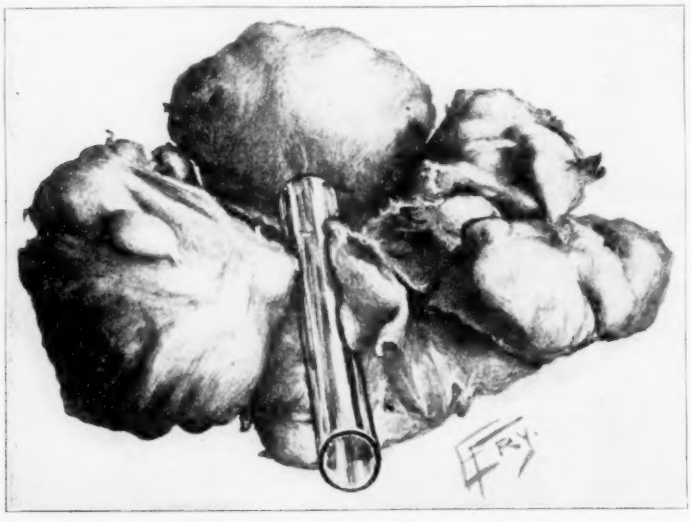


Fig. 4.—Actual size. Lateral and median lobe enlargement.

is part of the history of prostatic obstruction, the radical operation should be performed, for the condition giving rise to hemorrhage may in that way be removed before the patient's strength has been badly depleted.

Pain.—If pain is a prominent symptom of prostatic obstruction, leading to an undermining of the patient's health from its consequent exhaustion, he should be relieved by radical operation.

To sum up, the indications for operation are: Frequency, pain, cystitis, hemorrhages, catheter life, stone, residual urine (extreme), dilated bladder, contracted bladder.

HOW NOT TO OPERATE.

Bottini Operation.—I have always inveighed against the Bottini operation, and I have been charged as improperly inveighing against this operation because I have not had experience in it. I gladly accept this charge because I feel that the Bottini operation can be condemned on its own demerits without any necessity arising for each surgeon to subject his patient to a procedure which is so contrary to well-established surgical principles. There is no law of surgery more clearly defined and more fully recognized than that which is applied to the treatment of laceration or rupture of the deep urethra. For this condition there is but one recognized mode of treatment, and that is immediate perineal section down to the site of the laceration, with drainage of the bladder. The Bottini operation is one which produces laceration of the deep urethra, and except as modified by Chetwood, does not meet this clearly defined indication of external drainage. It has been claimed by its advocates that though it were often merely a palliative operation and frequently failed to effect a cure, that simply because it is not a cutting operation it is safer than one of the radical procedures. This is contrary to theory and contrary to fact, for every advocate of the Bottini method has shown a large mortality in his recorded cases.

Suprapubic Route.—I have always inveighed against the suprapubic route for operations on the prostate. The reasons for this are manifest and manifold. The prostate lies beneath and in front of the bladder, actually in the perineum; it does not lie above the bladder and it does not lie within the bladder, and to reach it by the suprapubic route is as irrational as it would be to operate on the tonsil by going through the occiput.

Suprapubic Prostatectomy.—I have always maintained that suprapubic prostatectomy entails an unnecessary danger to the patient, and statistics bear me out in this fact. Convalescence is tedious and protracted, infection of the prevesical space is of frequent occurrence, the uphill drainage of the bladder can not be compared with the perineal drainage in the line of gravitation, and prostatectomy performed through the upper route necessitates a double wounding of the bladder; that is to say, through its upper wall and through its lower or posterior wall. It leaves a thoroughly unsurgical wound, while prostatectomy performed

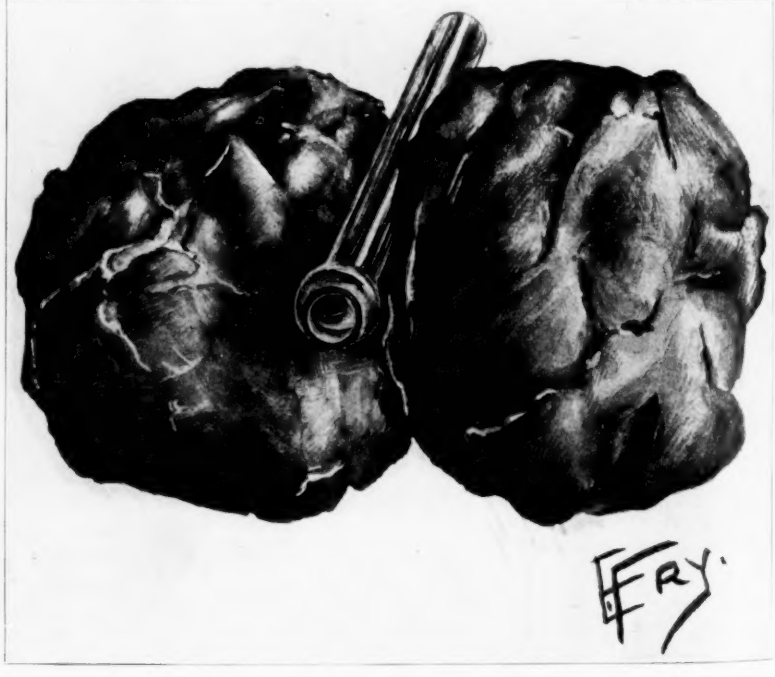


Fig. 5.—Actual size. Extreme lateral lobe enlargement.

by the perineal route, if properly done, does not involve the bladder at all; the bladder is uninjured, the drainage of the bladder and the drainage of the prostatic sheath are separate and distinct, convalescence is short and safe, the patients may be up on their feet at periods varying from one to five days after the operation, the least number of tissues are involved in the operation, with the smallest amount of mutilation. If properly performed, the operation is so simple and so safe that it may well be regulated to the realm of minor surgery.

HOW TO OPERATE.

A few years ago we all regarded prostatectomy as a dangerous procedure, and one which should not be undertaken unless there were grave indications for its employment, but to-day statistics have shown that in the hands of skilled and experienced operators perineal prostatectomy has been rendered so safe that it may be considered as the procedure which entails the least danger.

Fig. 6.—(a) Parker Syms prostate tractor collapsed. (b) Prostate tractor dilated to 2½ inches.

Perineal Route.—I have always maintained that operation should be done entirely through the perineum, and further experience, as well as the experience of surgeons at large, both those who hold this view and those who oppose it, has only tended to confirm me in this view.

I feel that the proper method of removing a prostate is the one which can be done the most expeditiously and

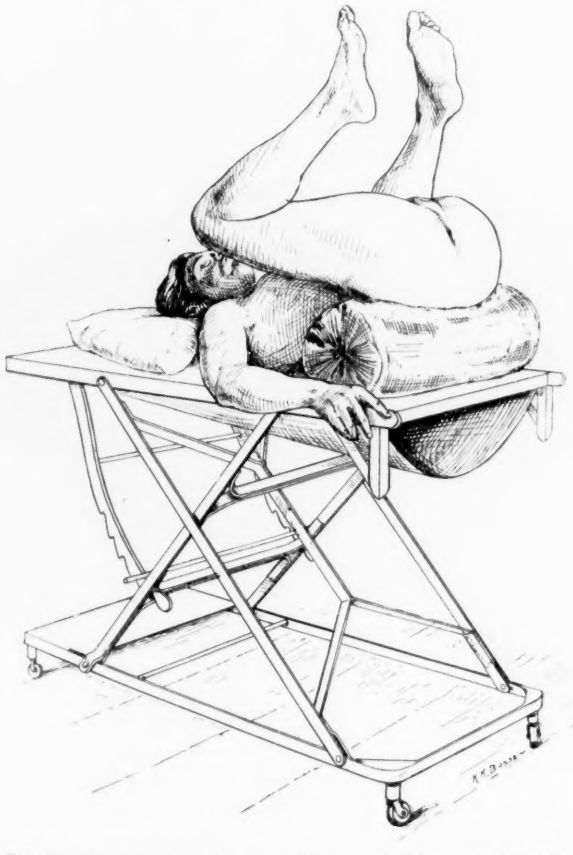


Fig. 7.—Extreme lithotomy position with hips raised. This is a great aid in bringing the prostate within reach.

at the same time involve the smallest amount of cutting and mutilation of parts, and the one that entails the least risk to the patient. I am persuaded that perineal prostatectomy performed through a small median perineal incision is the one that meets these requirements better than any other. The French operation described by Albarran, Proust and others, and which has been presented to us in a modified form by Young of Baltimore, involves an unnecessarily elaborate dissection of the perineum which requires an unnecessary amount of time and entails an unnecessary amount of hemorrhage. Every hypertrophied prostate can be removed through a simple straight median incision of the perineum; the cut may be made by practically one sweep of the knife down to the membranous urethra, which should be opened on the lithotomy staff; the rest of the operation is done simply by stretching and pushing the tissues with the finger, and enucleation of the prostate may be rapidly and easily accomplished by the single finger of the operator. Goodfellow of San Francisco accomplishes this with the greatest success without the aid of any retractor.

I have found a great aid to this operation in the rubber retractor (Fig. 6) which I first presented to the profession at the session of the American Medical Association in 1900, and which continued experience has prompted me to again tender to you with increased confidence. I feel that this instrument is in many ways superior to the metal retractor of the French, which, however, as modified by Young, is a very good instrument. My rubber retractor is soft and yielding, is harmless to the interior of the bladder, is absolutely out of the way of the operator, and is an excellent hemostatic, closing the space and stopping the oozing as soon as a lobe of the prostate has been removed. Since I presented this method of operating to the American Medical Association in 1900, I have hardly modified it, but increased experience has taught me that I can accomplish the object in a very brief time, and can work through a smaller incision than formerly. I have also found that the after-treatment can be materially modified to the advantage of the patient, as the period of convalescence has been made much shorter and much more comfortable than was the case with the earlier operation.

Fig. 8.—Showing simple median incision in perineum. There is no dissection and but a single sweep of the knife.

The method of operation is as follows: The patient, anesthetized with chloroform or ether, or with spinal cocainization, is placed on a short inclined plane, so as to be in a very extreme lithotomy position (Fig. 7). A Syms staff is introduced in the bladder and a single incision is made, opening the perineum down to the

membranous urethra (Fig. 8), the knife is passed into the groove of the staff and the membranous urethra opened throughout its length (Fig. 9). A probe or curved director is passed to the groove of the sound and thence into the bladder as a guide; then the staff is removed and the index finger is pushed into and through the prostatic urethra, fully dilating it into the neck of the bladder. The bladder is then thoroughly irrigated

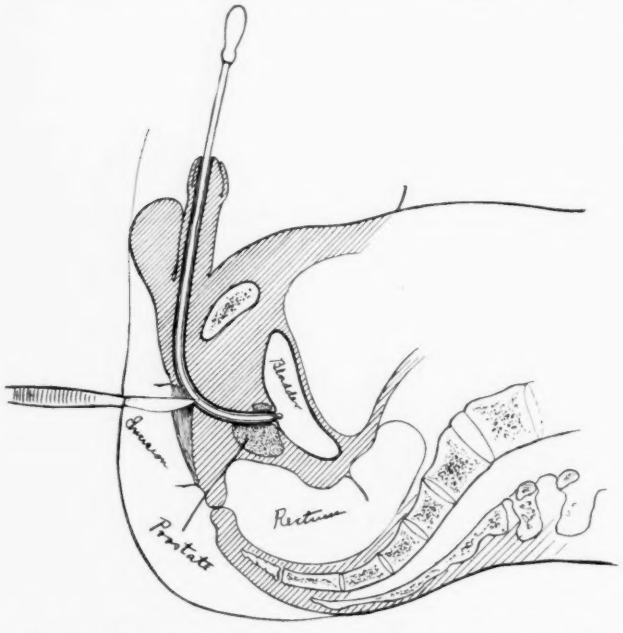


Fig. 9.—Shows knife entering the lithotomy staff preparatory to the division of the membranous urethra.

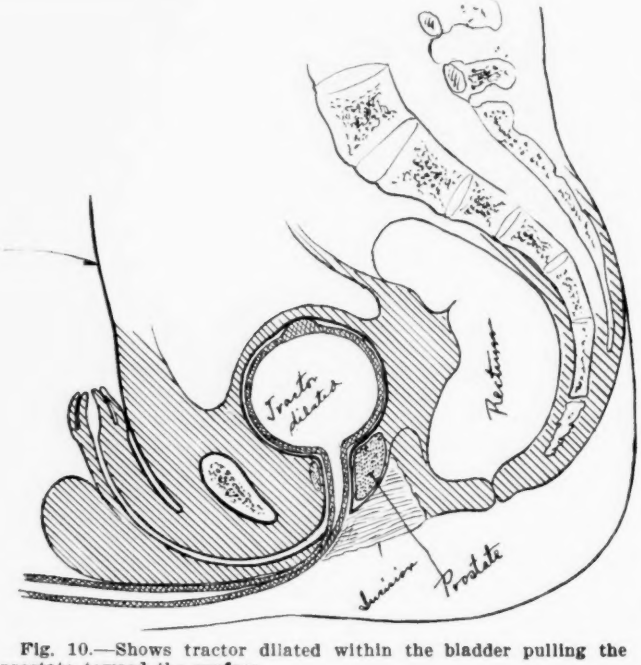


Fig. 10.—Shows tractor dilated within the bladder pulling the prostate toward the surface.

with sterile water, the rubber retractor is introduced into the bladder and fully dilated and clamped (Fig 10). Sufficient traction is now made on it, the wound is dilated with the finger, the tissues being pushed posteriorly and to one side so that the sheath of the prostate is exposed (Fig. 11), and a free vertical opening is made with scissors. The prostate is then rapidly enucleated by the index finger. If the proper line of cleavage be found, this may be rapidly and almost bloodlessly accomplished. As soon as the prostate is removed, a large perineal drainage tube is introduced into the bladder through the prostatic urethra, and the wound and the space from which the prostate was removed are packed with iodoform gauze. This packing is made tight and firm in proportion to the amount of oozing encountered. The wound is temporarily sutured over the gauze and the operation is complete. Patients are usually in bed within half an hour from the time the operation is commenced. Concerning preservation of the ejaculatory ducts, we would say that certain prostates produce their obstruction entirely on account of anatomic changes which take place in the isthmus or so-called middle lobe. In the majority of

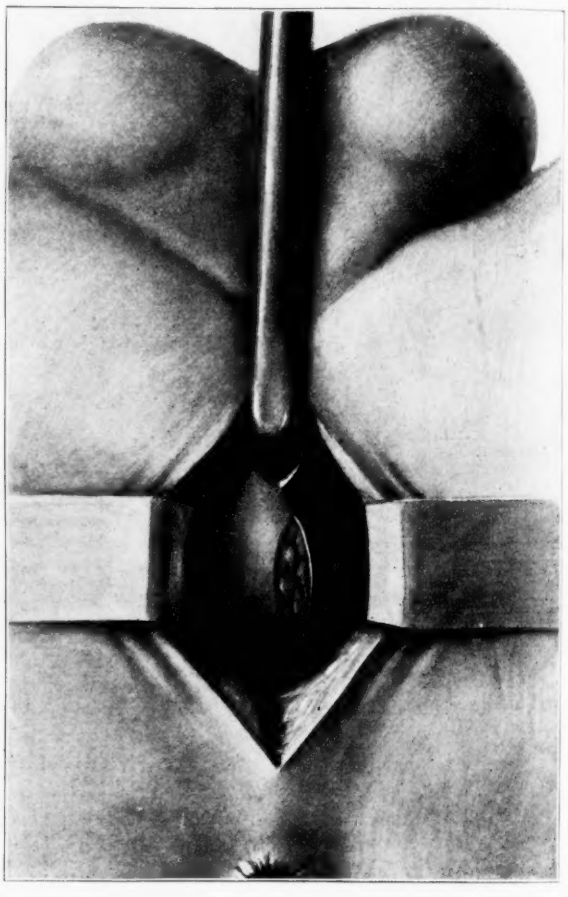


Fig. 11.—Tractor in situ. Incision in sheath of prostate is shown, ready for enucleation.

cases the obstruction is due to the lateral lobes which distort or compress the bladder orifice. In certain cases it would be impossible to remove the obstruction without removing the portion of prostate which contains the ejaculatory ducts, but in no cases is it necessary to remove any material portion from this region. As to the ultimate preservation of these ducts, and as to the ultimate preservation of the sexual function, we would say that this whole question must be more or less problematic. In a number of cases epididymitis has ensued as a post-operative complication, usually occurring when healing was nearly complete, sometimes occurring after complete healing. This would certainly show that infection had taken place from the urethra through the natural channels to the epididymis, and, therefore, that these ducts must have remained patent. In elderly patients, and, in fact, in the majority of prostatics, it

would be difficult to arrive at a satisfactory conclusion regarding the preservation of the sexual function.

Most of my recent patients have been up and about at the end of forty-eight hours, the gauze packing having been removed twelve to twenty-four hours after the operation, and the drainage tube usually at the end of forty-eight hours. From then on I consider the patient better out of bed than in. The normal bladder function has been speedily reproduced in all of these later cases.

As to mortality, I have now operated on 34 cases. I did the first 23 without a death; I lost the twenty-fourth and twenty-sixth cases. They were each very feeble old men, who apparently died as the result of the anesthetic. Hemorrhage was not present in either case, nor was there any infection nor suppression of urine; they simply went rapidly to pieces and died. These are the only two deaths, so that I have thus far lost two patients out of thirty-four. Goodfellow operates in the same simple manner. He has been longer in the field than any of us, and I believe he can report over seventy cases without a death, showing that perineal prostatectomy performed by a simple medium incision is certainly a very safe procedure.

NOTE:—The discussion on the papers of Drs. Syms, Goodfellow and Fuller will follow the last two papers next week.

HYDRASTIS.

SOME OF ITS THERAPEUTIC USES.*

W. BLAIR STEWART, A.M., M.D.
ATLANTIC CITY, N. J.

Many years ago, no one can say how many, the Indian tribes that roved over what is now our United States well knew the physical properties, the curative and medicinal virtues of a beautiful yellow, juicy, perennial root that grew in the rich shady woodland east of the Rocky Mountains. This root, when beaten up alone or with a little water, yielded a beautiful yellow fluid that would dye their clothing varying shades of yellow, according to concentration and mixture with other plant juices. They also knew that an infusion of this yellow root would cure many cases of ophthalmia and chronic leg ulcers. Indeed, the Cherokees were reported to cure cancers by it, but our present knowledge of the drug and disease practically disproves this idea. Like many of our medicinal preparations, what was then used empirically is now known practically to us as hydrastis canadensis.

Hydrastis canadensis has been used in almost every form from the infusion, powdered root, tincture, and active principles to the proprietary preparations, the composition or which is unknown to the profession and to be necessarily avoided if we would prescribe intelligently. Briefly stated, we have berberin and hydrastin as the two active principles, and from the latter we obtain hydrastinin. The fluid extract, tincture and glycetitum are the official preparations most used. Hydrastis is best recognized by its peculiar narcotic bitter taste and yellow color. The fluid extract probably represents the purest and most reliable preparation, and none but assayed preparations should be used. Many impure forms of hydrastis are on the market, but will not give the results that can be obtained from the pure drug.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pharmacology, and approved for publication by the Executive Committee. Drs. G. F. Butler, Solomon Solis-Cohen and O. T. Osborne.

PHYSIOLOGIC ACTION.

Hydrastis seems to be most active on mucous membrane, particularly so on diseased mucous membrane. Its first effect is to stimulate glandular activity by virtue of its bitter taste and its slight local irritation of the gland mouths. When they are diseased and oversecretive in their action, it will restore tone, decrease the mucous secretion, and rapidly assist in restoring their physiologic processes. It improves the innervation to the gland, and by virtue of its systemic effects reduces the blood supply by contraction of the tissues surrounding the arterioles of the part. It is mildly antiseptic in type, and temporarily prevents the development of some of the lower forms of germ activity. It is slightly astringent, but should not strictly be classed as such. It acts mildly on a torpid liver, and stimulates a freer secretion of bile, and in large doses causes free watery evacuations of the bowels. By virtue of its action on contractile muscular tissue, it will often produce abortion in the pregnant uterus if not used with discretion. Hydrastinin is most active in this direction, but the pure drug must be used with care in pregnancy. With these few notes on some of its physiologic activities, it is easy to apply hydrastis in the treatment of diseased conditions.

THERAPEUTIC USES.

It has been my privilege to watch the action of hydrastis (the fluid extract) on many cases of chronic catarrhal conditions of the stomach and bowels, and particularly those forms of catarrh due to the effects of alcohol. The fluid extract was given alone and in combination. It is best to begin with one or two drops in water every two to four hours, and increase gradually to ten or fifteen drops at each dose according to the results. In those cases where a large quantity of mucus is vomited and expectorated and there is anorexia, there was a gradual reduction in symptoms in almost every case if a strict course of dieteties was enforced. One case of alcoholic catarrh and almost drug addiction occurs to me as worthy of report in this connection:

Patient.—Man, aged about 45, ordinarily sober and not addicted to the regular use of liquors.

History.—Digestion is normal until he overtaxes himself by prolonged mental work and worry. Under these conditions it was his custom to use that much-advertised and overestimated alcoholic catarrh remedy known as "Peruna." (It is mentioned only to be condemned.) This always excited his latent desire for drink and he used as much as one bottle in each twenty-four hours for about two days, when he developed the worst form of delirium tremens, accompanied by great mucous gastric catarrh, vomiting and inability to control himself.

Treatment.—The preliminary treatment was a hypodermic injection of three-quarters of a grain of morphin sulphate and atropin sulphate gr. 1/150 and in two or three hours 10 grains of calomel and soda, followed in six hours by Hunyadi Janos and effervescent Vichy. When the opiate effect began to wear away he was given:

R.	Ext. hydrastis can. fld.	m. iis	|18
	Bismuthi subgallatis	gr. iis	|18
	Glycerini acidi carbolici	m. ss	|03
	Spiritus chloroformi	m. iv	|24
	Elix. lactopeptin. q. s.	3i	4|

M.

This dose was repeated every one-half to two hours. In addition he was given strychnia sulph. gr. 1/60 every two hours. His stimulant was cut off absolutely. In the first attack in which he called me no hydrastis was used and hypodermics had to be frequently repeated with very poor effect. At the suggestion of a fellow-practitioner hydrastis was used as above with the most remarkable results.

Result.—The mucus vomiting was reduced at the first dose and the desire for stimulant seemed to be controlled—in fact, stimulants were abhorred. If the hydrastis were withdrawn too soon the old appetite returned. Whenever he feels the least inclination for a drink or a return of the catarrhal condition he resumes his mixture of hydrastis with immediate benefit.

This is only one case in a number where it works well, but every person will not respond so quickly. If pushed and persisted in results may be expected in many cases, particularly the old catarrhal cases. It is quite noticeable that if pushed in large doses the bowels move very often for a few days, but this condition soon subsides for one of comparative regularity.

Many patients will come complaining of a poor appetite, slight nausea, sometimes vomiting catarrhal mucus and subacute indigestion. A proper counsel on diet and hygienic rules is of first importance; then give from one to six drops of fluid extract of hydrastis in water one hour before each meal and at bedtime. If there is no organic impairment of the mucous membrane decided results will follow. If a case of enterocolitis refuses to yield to ordinary treatment try small doses of hydrastis or hydrastinin at frequent intervals until results are obtained. It can be combined with other remedies.

For local use the glyceritum hydrastis is probably the best preparation. It is productive of excellent results in vaginitis and some forms of leucorrheal discharges, but not in the real acute stages. It acts best in subacute or chronic conditions. Chronic or prolonged specific urethritis will benefit greatly by diluted solutions in injection or by direct application. A spray of the glyceritum hydrastis in three or four parts of water greatly reduces chronic nasal catarrh if systematically used. In fact, it is a remedy that, while not infallible, is too much neglected, and should not be overlooked for the newer materia medica. Most authorities recommend much larger doses of the various preparations than have been indicated in this paper, but my experience shows better results with small doses at frequent intervals. Large doses are liable to produce nausea, vomiting, abdominal discomfort or diarrhea.

Hydrastininæ hydrochloras in doses of from one-fourth to one grain is an excellent remedy to control menorrhagia, but is slow in its first effects. It has a more prolonged effect than ergot. It is also recommended in epistaxis, hemoptysis, hematemesis and hematuria. It is a remedy that promises much for the future, and as reports of its use are published positive facts may be deduced. Do not use it in pregnant women except with the greatest caution, as it is liable to induce abortion.

Some prefer the use of hydrastin as representing the effective virtue of the drug. The impure hydrastin may do so, but the chemically pure hydrastin will not give the same effects as those obtained from the fluid extract. Pure hydrastin is given in doses of from one-eighth to one-third grain. While hydrastis is among the oldest remedies, it is probably too little used, too little understood, and is neglected. If this paper will serve to give an incentive to its further investigation and report it will accomplish the object of its production.

DISCUSSION.

DR. W. R. WHITE, Providence, R. I.—A number of years ago, when I was interne at the Rhode Island Hospital, an older physician, for whose opinion I had profound respect, told me that he was sure that hydrastis as a remedy was not sufficiently appreciated by the profession. He said that in his own observation it had a certain influence on the mucous membrane that no other remedy had. I recalled what Dr. Wiggin had said when I listened to the recommendation of its use by Dr. Stewart. I would like to hear his experience with it in colitis and in subacute catarrhal conditions of the large intestine. I would also suggest its local use by injection in these cases. It is very valuable in the diseases of children. Of course its bitterness is an obstacle to its administration to young children. Can this be overcome by a suitable vehicle for administration?

DR. WILLIAM F. WAUGH, Chicago—*The Chemist and Druggist* called attention to the very inferior quality of the hydrastis that was coming to market. Owing to its collection by ignorant persons the drug supplied was almost entirely destitute of active principle. The editorial comment was that "this does not interest the manufacturers of galenics." This was an English paper and apparently no joke was intended. Hydrastin is a contractor of blood vessels and especially the small vessels, while berberin contracts the connective tissue. Where there is a relaxed condition of the uterine supports, it is interesting to observe its effects on the tissues; they remain contracted so that after several weeks instrumental support would not be needed. Dilated stomachs also will be contracted by the same remedy. This property also explains its value in proctitis and colitis. In very many mucous conditions we find relaxation of connective tissue for which we have a remedy in berberin.

DR. CLEMENT B. LOWE, Philadelphia—This is a case where we do not get the same results from an active principle as from the drug itself. Hydrastis has two principles, hydrastin and berberin; hydrastin is always white, its crystals are colorless, as also its salts. Berberin is yellow and its presence gives color to the eclectic preparation hydrastin, which consists both of hydrastin and berberin. Dr. Stewart says that he got better results from a good extract of the drug than he got from hydrastin. The purer the hydrastin the less it represents the fluid extract. This is an illustration which takes the ground from under the feet of those who claim that we can always get as good results from the active principles as from the drug itself. Morphin does not take the place of opium in practice, because there are a number of other active principles present in the drug that have decided physiologic effects.

DR. HEINRICH STERN, New York City—I wish to call attention to the cumulative effect of hydrastis canadensis. I have not seen an account of this in the works on materia medica and pharmacology which I have consulted. My observations are based on a very large number of cases of manifold pathology for which hydrastis canadensis, in the form of the fluid extract, had been prescribed. The elimination of hydrastis is quite rapid as a general rule, the kidney being the chief excreting organ. In case the latter is chronically affected, especially in cases of chronic interstitial nephritis, the elimination of hydrastis does not occur in the normal ratio and it accumulates to a greater or less extent in the organism. In cases of chronic parenchymatous nephritis its elimination is not materially interfered with, but other medicines, for instance rheum, tend to accumulate when the kidney is of the large white variety. The symptoms of hydrastis accumulation in contracted kidney are headache, vertigo, blurred vision, nausea, constipation, insensibility of terminal nerve filaments and convulsive disorders. I have come to the conclusion that every individual exhibiting a pronounced idiosyncrasy for hydrastis possesses contracted kidneys, even if this is but in the very first incipient stages. In this respect it may serve as a valuable diagnostic remedy. I consider it even diagnostic in cases where kidney epithelia in large amounts, casts and albumin are for long periods not detectable in the urine. The usual doses of ten and more drops of the fluid extract are much too large in the general run of cases, especially when treatment is started. It is not for us to determine how much of a medicine a patient can stand before toxic symptoms develop, but how little of it will relieve his pathologic symptoms. I usually

start the patient on from two to three drops of the fluid extract, increasing it slowly if the desired results are not obtained in this dose. I hardly ever administer more than five drops three or four times a day.

Dr. W. B. Stewart—In the treatment of diseases of the stomach the administration of hydrastis, or the alkaloidal forms of it, has probably more of a contractile effect on the connective tissue, and particularly on the relaxed glands of these parts. I have had no experience with the local application, but can see no reason why, in case of ulcer of the rectum for instance, it should not have a good effect. It certainly acts well in catarrhal conditions of other parts, and it would do no harm to try it. Another question was about the administration of hydrastis. The bitterness is covered up to a certain extent by verba santa and similar preparations, but if you combine it with much of these to make it palatable, you will get more harm from the excipients than you will get good from the hydrastis. I generally prefer to give it in capsule. In the case of very young children capsules would be entirely impracticable. When listening to Dr. Waugh, who is my old teacher at college, I recalled a statement by him in 1888 to the class, when lecturing on catarrhal conditions. He said: "Remember, gentlemen, in catarrhal conditions, hydrastis is the sheet anchor." In reply to Dr. Lowe I would state that I have not used the impure preparation of hydrastin, but in all cases have used the chemically pure alkaloid, and was very glad to hear Dr. Stern state that there are cumulative effects, and that in interstitial nephritis there is special danger of cumulative action, which adds to our stock of knowledge of this drug. I agree with the recommendation to use small doses at first and gradually increase them, watching the effect. If you do not get good effects you may suspect some trouble in the kidney. Has Dr. Boardman Reed had any experience in the use of hydrastin in diseases of the stomach?

Dr. Boardman Reed, Philadelphia—I have had no personal experience with hydrastis in treating diseases of the stomach. When I pursued my special studies of stomach diseases in Germany they did not use it there for this purpose, and my attention was not directed to it. In my former general practice I found hydrastinin very satisfactory in treating uterine hemorrhage. In other conditions I have used hydrastis in small doses without any decided results. In testing any such remedy in stomach cases test meals should be given from time to time and the contents examined to determine the effects. In the future, when I see cases of gastric catarrh that are difficult to control, I shall bear hydrastis in mind and make trials of it under exact conditions. If gastric catarrh can be greatly relieved by small doses of hydrastis, it will be a very good thing to know.

HOW TO PRODUCE MILK FOR INFANT FEEDING.*

EDWARD F. BRUSH, M.D.
MOUNT VERNON, N. Y.

Many infants must be nourished artificially. The reasons for this are plain. Sometimes the mother is overworked, insufficiently nourished, harassed by a vicious husband and many other children, often incompetent by her own unfortunate temper or a vicious appetite and indulgence or a vagrant desire for amusements, sometimes by an inability to secrete milk. The business of properly nourishing an infant is a serious one, and to be properly accomplished must be attended to with an intense sense of duty. The mother must be healthy, love her child, and not nurse it when she is seriously disturbed, either mentally or physically.

I was called to see an infant in a severe convulsion. I found that the mother was very solicitous and affectionate. She had been so careful of her child that she did not even allow it to have a drink of water, feeling confident that she herself could fulfill all these requirements. So I said, "Have you any trouble in the family?" She answered, "No." "Well," said I, "surely if you have told me the truth about your feeding the baby, you are not truthful about everything being right in the house." Then, in a fit of crying, she said: "My husband's brother has been here disputing two days about a mortgage." So I said: "Stop nursing your baby until the mortgage business is settled." She did so, and the child recovered promptly. After the brother went away, the mother resumed nursing her child, and there was no further trouble to my knowledge.

It would be a long study to ascertain what effect butter and cheese from diseased cows, improperly fed, housed or cared for, has on the human being consuming these articles of diet. These foods are mixed with many other articles, and it would be difficult to say which was the cause when one's food disagrees with them, but I think with a bottle-fed baby using only milk and water, a search for the source of offense when the baby's stomach or bowels are affected, is very simple.

It is easier to control cows than women. Human mothers are often emotional, excitable, indiscreet, sometimes hysterical, and not always able to control themselves. A dairyman understanding that these conditions can affect milk, must also understand the necessity of controlling his cows. When a cow is in heat or otherwise gets disturbed or hurt, the milk can be thrown away and the excited cow can be kept from influencing the other members of the herd. From years of experience and observation, I feel safe in affirming that the accountable party to the individual in the cradle is the man who is responsible for the production of the milk when the foot that rocks the cradle is not the mater who furnishes the nourishment for the baby. And, therefore, dairymen who are supplying milk for infants' food are assuming a terrible responsibility. There are thousands of infants dying yearly from stomach and intestinal troubles who are fed on the milk sent to the cities and villages by dairymen surrounding the urban and interurban communities, and I am sure that the milkmen supplying these artificially fed infants are responsible for a large percentage of the deaths, and that these infants are killed by carelessness on the part of the dairymen supplying them with their daily food.

In the year 1882 I had charge of the country home of the New York Infant Asylum, and during that year I had 518 inmates, with only 26 deaths, for the entire year. Of these deaths, 5 were artificially fed infants, and 13 were breast fed; the others were weaned. There was not a single case of acute intestinal disturbance. I think that this percentage, a fraction above 5 per cent. of a death rate in an infant institution, is remarkable, and the low mortality was simply due to the fact that I had charge of the cows furnishing the milk for the artificially fed. It seems to me that we will never reach the proper stage of producing milk for infants until we separate the infant food dairy from the commercial dairy. The agricultural colleges and journals devoted to dairying interests are teaching how to raise an abundance of milk at the cheapest possible outlay on the part of the dairymen. The percentage of fats

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

and solids in good milk used for infant feeding is a very insignificant item, while in the cheese and butter factories the fats and solids are the only real value of the milk, and on these percentages the dairyman properly gets his returns. There are many factors at the present time working against the production of proper cow's milk for infant feeding, and the first is breeding.

That the bovine race is notoriously prone to tuberculosis and other forms of chronic disease is admitted, and the better the breed from the dairyman's point of view the more numerously are they afflicted by chronic diseases; therefore, the first and most important consideration, in reforming the methods of supplying milk for infant's food should begin with breeding.

The cow supplying milk for infants' food should be bred from rugged animals not closely related; she should be quiet in disposition, perfectly sound in health, comparatively well nourished, that is, neither excessively fat nor emaciated, and this variety of cow could not possibly be a large yielder of milk.

There has been for generations a tendency to breed the dairy cow to a wrong standard to get good milk for babies. The scrofulous form in all dairy animals is usually an abundant milker, and so from a commercial aspect she is the best cow. And for this reason she is the ideal standard for many breeders; hence the intense in and in breeding, which is necessary to produce this form, and we see in the Jersey herds this mistaken food form of the ideal butter cow. We all know how many of the fancy herds have been condemned by the health authorities, all of them yielding excessively fatty milk. I believe the first reform in infant feeding must begin with another cow.

We must separate the commercial butter and cheese cow from the animal supplying the baby's food. Dairy herds must be established for baby's milk especially; in fact, these will, of necessity, make a separate class of dairymen and dairy cattle with entirely separate methods of feeding, breeding and handling the milk. When these proper conditions are established, the dairy for butter and cheese and the dairy producing milk for food will be separate institutions, and the state control of fat and solid percentages will not be insisted on for the milk food supply.

The cow is man's forager and nurse, and if he attends to her properly she is the best of all his food producers; but she will surely furnish poison for him as easily as good food if he himself does not understand how to prevent her from doing so. She sometimes eats poisonous weeds with impunity to herself. It is said on good authority that the milking cow can eat poisonous weeds that would kill her if she was not giving milk, but the poison reaches the milk consumer, whether it is her own calf or somebody's baby.

I have in mind an animal I have been watching for some years. She is a Jersey, very handsome, fawn colored, large eyes, delicate limbs, a typical aristocratic Jersey cow. Three years ago at springtime a baby sickened and died while getting milk from this cow. I examined the cow very carefully at the time, but could find nothing definite ailing her except that she was a nervous and excitable animal. She was sold, and about a year later, in the spring, another baby getting her milk died, and there was considerable ugly talk about this affair, so the second owner sold her. Last spring she had a calf, and the calf sickened while sucking in the springtime. This owner asked me to examine the cow. I could find no definite disease, but told him the history of the cow and advised him to kill her. He said he would, but I see her now nearly every day on the lawn, and the owner tells me that he makes butter from her rich milk. This is undoubtedly a good butter cow. She is a splendid lawn decoration, and for folks who do not want her milk for children she is all right. Her present owner has no children, and I do not believe now that there is any danger of any child getting her milk.

I believe the wealthy amateur dairyman does as much harm, if not more, than the careless, poor owner of dairy cows. Dirt that is not pathogenic is far less killing than milk from perturbed or nervous cows. The periodical injection of tuberculin must be disturbing. The effort to maintain a herd of aristocratic, highly bred Jerseys may do very well for a butter herd, but I am sure they are dangerous to supply milk to feed babies.

MODIFIED MILK.

A baby is a good milk analyzer, and when there is nothing added to the milk it gets its method of analysis is sure and simple. If the baby dies from intestinal disturbance when it has no other food than milk and sterilized water, the man furnishing the milk should be held responsible, but when physicians imagine that they can take milk fresh from the milk train and by some novel method of modifying make it equal to mother's milk, then no one can tell whether the trouble originated in the laboratory or from milk sugar, or any of the other causes that may arise with old milk and other old things.

While physicians are trying to construct plans to make bad milk good and persuade parents that sterilizing, peptonizing, pancreatizing, modifying with cream from equally bad milk and indefinite milk sugar, or making gruel, either from barley or other cereals, with the idea that this is the best that can be done, they will still have the problem unsolved, of how to nourish the baby who can not get good milk from his own mother's breast.

A few weeks ago a physician telephoned me that the milk I was sending to him went wrong. On inquiry I ascertained that he was adding milk sugar and lime water. I told him to stop the addition, and he was surprised to hear me say that milk could be fed without modifying. After three weeks his wife telephoned me asking if she could not add sugar. She said the baby was thriving, bowels normal, but she still had the idea that something must be added. No man living to-day can prepare good food for infants from bad milk. He may modify it as he pleases, but the baby will not receive it kindly. Still, on insistence, he often takes it and dies. I know that milk can not be improved, even by the most learned chemist that ever lived.

Good cow's milk will nourish an infant without intervention of the chemist, while bad milk will kill in spite of the man who knows how to modify milk according to the most approved method.

CARE OF THE COWS.

A properly bred cow should not have her first calf until after she is 2 years old. She should always be fed in the stable while giving milk, summer and winter; she should have clean stable and careful currying; her abode should be thoroughly ventilated during summer by exhaust fans, and in winter with properly constructed ventilators. Cows must receive a perfectly balanced ration, that is, a sufficient quantity of nitrogen-

ized and non-nitrogenized food, to balance the amount of the same element that they excrete in the milk and use up for their own nutrition. The grain and oats should be ground fresh daily. Good clean hay, bright oat straw, and properly housed ensilage during the winter months, and in the summer time green fodder, freshly cut and mixed with the hay and grain. None of the waste material from breweries, starch factories, cider mills, beet-sugar refuse, should be given; in fact, the only by-products that are good food for cows are wheat-bran, linseed meal cake, or cottonseed oil meal.

It is a curious fact that the greater part of dairy diet known as cow feed is the refuse from factories that can be put to no other use.

Milking.—Certainly the care of milk and the time that elapses from between its extraction from the cow and its introduction to the stomach are very necessary considerations. The care and attention to milking is also important. The milker should be a good-natured man. When a milker is kind and has a crooning way with the cow, there is a wonderful difference in the milk.

I have seen milk disagree with babies because of the presence of a cross man in the stable. When the cow is afraid of the man who milks her, the mental nervousness affects the milk perniciously. I have seen milk disturbed by the milker having long finger-nails, and thus hurting the dugs. Also I have noticed a milker using his thumb double, thus using the hard joint to press the teat, causing pain and disturbing the quality of the milk. It is very important that the men milking cows should not have hard, callous or deformed hands, but clean soft hands and a gentle manner. I never allow my men to wet the teats or udder, simply brush the udder and belly clean before milking. I have seen many a chapping of the teats, especially in the winter time, from the wetting and washing before milking. The first squirt from each dug should be caught in a small pail and thrown away. In almost every dairy one will find many cows with either warts, small ulcers or other sores on the dugs of the milking cows. Many of them must be painful to the cow while being milked, and some of them are specific, i. e., cow-pox, or some form of disease from the milker's infected hand.

CONCLUSION.

Dairymen should be held responsible for the stomach and intestinal condition of otherwise healthy infants fed on milk that they furnish, providing that nothing is added, except sterilized water, cane sugar or cream that comes from the cows under their control. Certainly, the milk must be carefully guarded, kept cold, below 50 F., and away from contaminating influences, or the addition of milk sugar, lime water, pepsin, pancreates or any other articles except as above specified.

The surest test that milk is good food for the baby is the baby itself. The percentages of fat, the proportions of proteids, and all the other chemical data amount to nothing, if the baby is thriving the milk is good.

Swimming as Part of a School Curriculum.—The *Medical Press* urges the desirability of making swimming a compulsory part of all school training, and deplores the fact that many children are absolutely devoid of any knowledge of this most useful attainment. It advises, in the interests of the physical development of the people, and as a wise prophylactic measure for the safeguarding of human lives, that swimming be made a compulsory element in every public school education.

THE INITIAL CONTAMINATION OF MILK *

RICHARD COLE NEWTON, M.D.

MONTCLAIR, N. J.

There has been considerable advance in the study of lactology since the time when the old lady desired just enough milk in her tea to make it "taste a little bit cowy." And while there is still very much to be learned, there is no question that in both lay and professional circles the interest in milk as a food and as a means of contagion steadily increases. Among other influences, the great activity of the manufacturers and vendors of proprietary baby foods, it would seem, must have led people to inquire more strictly into the great question of how infants really ought to be fed, and the very gratifying decrease in the mortality of artificially nourished infants demonstrates the great utility of the steps already taken to properly nourish them, and, at the same time, to avoid communicating disease to them in their food.

It is not necessary to enumerate the names of a large number of physicians and scientists, many of them still young men and women, who have conferred an incalculable benefit on humanity by their labors in this

It has hitherto been supposed that milk while in the cow's udder is sterile, and that the bacterial content of market milk could be reduced to zero if infection of the milk after it leaves the udder could be prevented.

Conn and others, however, have been unable to produce sterile milk, although every possible precaution has been taken in milking and in handling the milk.

Conn[1] describes a process by which he produced what he calls aseptic milk, as follows: "The cow's tail was tied to the leg on the farther side, and the flank and side and the udder were then washed with a 3 per cent. solution of boracic acid and wiped with a sterilized cloth; the milker then washed his hands with the boracic-acid solution and wiped them on a sterilized cloth. About half the milk was milked out and the udder and surrounding parts were again washed in boracic acid and wiped with a sterilized cloth. Once more the milker washed his hands, and then drew the remaining milk into a sterilized covered pail through four thicknesses of sterilized cheesecloth and a layer of absorbent cotton. This milk we call aseptic milk." Of nine samples of this milk, when freshly drawn, the average bacterial content was 242 per cubic centimeter.

If the precautions just enumerated will not produce sterile milk, it would seem as though its production is impracticable. Nothing further apparently could have been done, unless it were to actually shave the cow. Freeman[2] says: "We have no dairy routine that is at the present time practicable that will give us milk free from bacteria."

Admitting, then, that sterile market milk can not be produced, let us look into some of the advantages which will accrue if milk can be marketed that shall be on the average practically as free from bacteria as the nine samples produced by Professor Conn.

From time immemorial milk has been subjected to a process of straining sooner or later after the conclusion of the milking, and for many years metallic strainers made of wire netting or perforated tin have been used.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. S. W. Kelley, H. M. McClanahan and John C. Cook.

1. Fifteenth Annual Report, Storrs Agricultural Experiment Station, 1901, p. 119, 1902, p. 53, 1903, p. 35.

2. Albany Med. Annals, March, 1904, pp. 279, 280.

It has been demonstrated, however, that milk strained through such strainers undergoes little improvement, except that it is freed from pieces of hay, straw, hair and such large objects, but its keeping qualities or its bacterial content are not improved. Generally speaking, however, much visible dirt is left in milk strained in the ordinary way. Of this dirt a large portion is cow dung, and how important this source of contamination of milk is, the following quotation from Harrington will show: "A very small amount of fecal filth per quart of milk makes a very great increase in the number of bacteria per cubic centimeter." Thus it has been shown that with one-tenth grain of stable dirt per quart, one may expect about three and one-third millions of bacteria per cubic centimeter; with one-third grain the number rises to more than 7,000,000, and with a little more than a half grain it rises to nearly 13,000,000.

The average bacterial content of sewage is stated to be from 1,000,000 to 4,000,000 per cubic centimeter, hence we observe that a contamination of one-tenth grain of manure, an almost invisible quantity to the unaided eye, per quart of milk gives a bacterial content equal to that of ordinary sewage.

But this appalling statement is no more startling than another made by the same author, that from quantitative determinations of the amount of stable dirt in many samples of milk it has been estimated that Berlin drinks every day in the milk supply of the city no less than 300 pounds of cow manure, and what is true of Berlin must be true of New York and other cities, so that in the metropolis of the United States probably 500 or 600 pounds of cow manure are drunk every day with the milk.

Pure milk has no odor and a very delicate taste, so that the so-called "cowy taste" and smell of ordinary milk are caused by cow manure, and this is too painfully apparent to a discriminating nose and palate in any but the cleanest milk.

That cow manure is very soluble in warm milk, so that a considerable portion of that finding its way into the milk is quickly dissolved and can not be removed by subsequent straining, Conn and others have proved. Belcher[3] speaks of this property of milk, and says that no reliance can be placed on the strainer's ability to make up for previous careless handling of the milk.

Conn carried out a series of experiments to ascertain the effect of straining milk, at the conclusion of the process of milking, on its bacterial content, and found that in twenty samples there was little difference between strained and unstrained milk in the number of bacteria nor in the time of curdling.

He says: "It is something of a surprise that no larger benefit is shown (from straining), for as has been indicated by previous experiments, the amount of dirt which is removed by the straining is about 40 per cent." "It has been found by Weil[4] that filtering milk through filters frequently increases the apparent number of bacteria present. This author, however, concluded that the cause of the apparent increase was that the filter was not sterilized and contained bacteria, which were washed through by the filtering. This does not apply to our experiments, inasmuch as the filter being simply cheesecloth was thoroughly sterilized before each experiment."

3. Clean Milk, p. 102.
4. Milch Ztg., p. 739.

Another writer[5] says: "The liquid impurities (of milk) can not be detected by the microscope. No pasteurizing process can cure or cover up the evil results of nastiness in milking. The particles of manure convey to the milk the digestive ferments from the bowels of the cow. They set up that class of fermentation that gives to milk a slimy physical condition and decidedly unpleasant odor."

This odor is so apparent to a susceptible nose that one large milk-dealing establishment employs a man who accepts or rejects the milk offered by the various producers, judging it solely by its odor.

The thorough aëration of cow's milk so commonly prescribed to remove its alleged natural odor would be entirely unnecessary if the manure could be kept out of the milk. In fact, a large part of the battle for clean and wholesome milk would be won if the initial contamination could be prevented. I refer to the avoidable contamination from sources external to the cow's udder.

The importance of preventing the initial contamination of the milk from dust and germs in the atmosphere does not seem to be generally appreciated. It is true that various devices have at times been adopted to accomplish this purpose, and some of them are still in vogue. Metal strainers have, however, been largely discarded, and justly so, since milking through them, as we have seen, tends to increase the bacterial content. Milking through absorbent cotton is effective, but is a troublesome method and requires for its successful use a rather complicated milk pail, with a number of pieces which makes the apparatus hard to keep sterile and rather too intricate, perhaps, for the average dairyman to manage.

In one of the best known of modern dairies, after experimenting with various devices and finding that the ordinary wire milk strainer was worse than none, the milk is now drawn into an open pail and strained after the process is completed, in the old-fashioned way. No doubt the managers of this dairy, whose name is synonomous with clean and scientific dairying, are now looking for a satisfactory device which shall arrest the air-borne and other impurities which are carried into the milk pail by the process of milking. Naturally, various attempts have been made to milk through strainers and even into bottles. One dairyman thought that he could strain the milk through its own froth, collected on a wire or other strainer. Covered pails of various sorts have from time to time been introduced, but have not yet come into general use.

Dr. Freeman[6] advocates an ordinary eight- or ten-quart pail, with a hood over the top so that perpendicular droppings, dust and contamination from the cow's body, the milker's clothes, breath and so on shall be excluded.

Professor Conn,[7] after pointing out that milk drawn by a milking machine has been experimentally proved to be rather more contaminated by bacteria than milk drawn in the ordinary way, describes a pail with a cover and with gauze or cheesecloth stretched over a small opening in the cover. This pail answers its purposes very well. By its use Professor Conn and his colleagues at the Storrs Experiment Station were able to exclude 66 per cent. of the initial contamination of milk by dirt, with very great improvement in its character and

5. Bulletin 134, Michigan State Agricultural College Experiment Station, June, 1896, p. 21.
6. Albany Medical Annals, March, 1904, p. 282.
7. Bacteria in Milk and Its Products, p. 52 et seq.

keeping qualities, as will be described presently. The pail is an ordinary milk pail, with a well-fitting cover with a handle. In one side of this cover is sunk a circular cup or funnel-shaped rim surrounding an orifice about four inches in diameter, and into this can be fitted a funnel-shaped bottomless cup several inches high. One or more thicknesses of sterile cheesecloth are stretched across the opening of the cover and held in place by the upper cup being firmly driven into the lower.

The strainer of a second pail is somewhat less complicated in construction. The pail itself is shaped like an ordinary chamber slop-pail, with a cover, one-half of the upper portion of which has been cut away. The sterile cloth diaphragm is stretched across the top of the pail and the cover fitted snugly over it. A spout in the side of the pail, fitted with a metallic strainer, enables the milker to empty the pail without taking off the cover or disturbing the diaphragm—a doubtful advantage.

A cover consisting of one piece is easy to handle, to sterilize and to keep sterile. In one of these pails there is the objection advanced by Dr. Freeman[6] that the opening looks perpendicularly upward and is, therefore, more liable to catch the droppings from the atmosphere and those which come off from the cow's body and from the milker's hands, clothes, breath, etc., and which are the initial contamination of the milk. Furthermore, there is always some spattering in milking, and the droplets of milk scattered around on the edges of the pail and the milker's hands and the cow's udder become contaminated and some of them will be subsequently washed into the pail; the spout in the side of the pail with the strainer over the end will surely catch some bacteria from outside, and will tempt a careless milker to empty his pail without renewing his diaphragm of sterile cheesecloth at the conclusion of each milking, as he should do.

A pail has recently been devised, and is now used in several dairies. This pail is made out of a single piece of steel, and has no seams to catch and hold bacteria or minute particles of curd or other fermenting substance. It is the size of an ordinary milk pail, and has a close-fitting, dome-shaped cover, also made of one piece of steel, with a circular orifice in the top 3½ inches in diameter, which is the size of the plates on which the milk bacteria are grown. Two thicknesses of sterile cheesecloth are stretched over the top of the pail and the cover fitted on. The hole in the top of the cover is nearly six inches above the cloth diaphragm. This almost completely prevents spattering, which is bound to occur when the sterile cloth is stretched over a wire sieve or when the cloth is part of the cover itself and on a level with the top of the pail.

Owing to the comparatively small size of the opening in the cover and the slanting position in which the pail is held during milking, the perpendicular droppings into the pail during the process are largely prevented, whether they come from the milker's breath or hands, or the cow's body or the surrounding atmosphere.

There are only three pieces to the entire mechanism—the pail, the cover and the sterile cheesecloth—and each of them is of the simplest possible construction.

As to the efficiency of covered pails, there may be some room for discussion, and inasmuch as the matter is of such paramount importance, it may be well to follow it out somewhat in detail.

As already stated, Professor Conn found that when he used a covered pail and milked through four thicknesses of sterile cheesecloth and a layer of absorbent cotton, he reduced the number of bacteria in the milk to 242 per cubic centimeter in one set of experiments and 267 in another. And he also found that when the numbers of bacteria in fresh milk vary from 2,000 to 40,000 per cubic centimeter, and are from both external and internal sources of contamination, no parallel can be drawn between the number of bacteria present at any later stage and the number present at the outset. This does not hold true when the numbers are still further reduced. By aseptic milking, the bacteria have been reduced to about 300 per cubic centimeter, and this has a very striking effect on the numbers present in the milk at later stages, whether it has been preserved at 50 F. or 70 F.

These observations led Professor Conn to the important discovery that the bacteria which get into milk from other sources than the milk ducts grow more readily under ordinary conditions and ordinary temperatures than do those that come from the milk ducts.

In other words, by cutting off the supply of manure, dust, etc., which ordinarily defiles milk, we get a much better-keeping milk, because the rapidly growing bacteria which are brought in with the stable dirt and dust are excluded. It is also fair to assume that the pathogenic bacteria which might come from the milker's breath or his hands will also be excluded by the covered pail.

A number of analyses of milk drawn into a covered pail give an average bacterial count for nine samples (Table A) taken during September and December, 1904, of 628 per c.c., and of 70 analyses made later (Table E), the average was 449, which is not much higher than that of Professor Conn's aseptic milk, already cited, produced as we have seen with the utmost possible pains and being taken from the latter half of the milking, whereas the counts in the last-named experiments were made from the samples taken out of the market milk and milked under the same conditions as the rest of the milk in a regular milking room.

Of the milk twenty-four hours old, the showing is remarkable. Of fifty-three observations made during four months (Table B), the average bacterial content was 447 per cubic centimeter.

The temperature had been maintained at 45 F., whereas in Professor Conn's Table 10 the average bacterial content in eight samples of aseptic milk kept twenty-four hours at 50 degrees was 5,991. It seems only fair, however, to omit one sample from Professor Conn's table, which showed the extraordinary count of 45,416 per cubic centimeter. The table with this omission gives an average of 358, which is somewhat smaller than those just given, but showing remarkably little variation from the latter when we consider the differences observed in producing the milk already spoken of. Gratifying as the above showing is, it is not the most remarkable result obtained by using the covered pail nor the one of the greatest interest to milk consumers and producers alike.

Stocking, the assistant bacteriologist to the Storrs Experiment Station, says: "It has already been pointed out that these tests were made in a dairy where the conditions of cleanliness were good. The amount of filth, such as dirt, hair, etc., that is frequently removed by a separator from milk of ordinary dairies as delivered in cities, is appalling. It would be interesting to test the

efficiency of the covered pail in dairies where the sanitary conditions are not so good as they were in these tests."

A series of such tests have been, in fact, carried out (Tables C and E), in which fresh milk and milk twenty-four hours old were "counted." This milk had been produced "in old dusty barns with no precautions whatever, except that the covered pail with the sterile cheesecloth diaphragm was used, and the cloth was changed for every two cows." From these experiments, we get the remarkable showing that the average bacterial content of 74 samples of fresh milk drawn into the closed pail in a dusty barn (Table E) was 3,041; and of twenty-one samples of milk twenty-four hours old which had been drawn under the same conditions (Table C) kept at 45 F., the average count was 793.

Comparing these figures with those in Tables D and E, in which the "counts" are given of milk drawn into old-fashioned open pails in old dusty barns, of the fresh milk the average bacterial count was 2,269 and 3,041, second series. Of the milk twenty-four hours old, the average was 5,772. As stated in the note to Table D, the weather at the time of these observations was very cold and unfavorable to the growth of bacteria or the differences might have been considerably larger.

If these experiments, a summary of which will be found in Tables E and F, shall be confirmed by others, and I might say that they have already been measurably confirmed by two sets of experiments made entirely independently of each other, a great step will have been taken toward the production on any farm of a safe, wholesome, well-keeping milk, fully up to the standard of the "certified" and "standard milks" now on the market.

The poor farmer, with his three or four cows, will no longer labor under insurmountable obstacles when competing with the elaborate and richly stocked dairies.

Dr. Herrold of the Newark Board of Health relates an instance in which a farmer, merely by tying a piece of clean cloth on an ordinary pail with a string, was able to produce better and cleaner milk than any one in the neighborhood of certain large summer hotels. Any farmer can buy an Arnold sterilizer, a few bolts of cheesecloth and one or more covered pails, and by using a sufficient amount of ice, can send milk to market with a bacterial content of less than 30,000 per cubic centimeter. No soap of any kind should be used in washing the cheesecloth, which should be boiled with ordinary soda or some alkaline powder.

If any one doubts the efficiency of the sterile cheesecloth diaphragm, let him observe the quantity of dirt which will collect on it from one milking, even in the cleanest milking room; and if the milk contains mucus, pus, blood or stringy matter the quantity of detritus filtered out will be appalling.

If the careful and painstaking experiments just cited are not entirely fallacious, the conclusion is obvious that a general dairy law that no milk shall be offered for sale with a bacterial content above 30,000 per cubic centimeter, would be justifiable and comparatively easy of enforcement.

As already mentioned, if milk is drawn into the covered pail the use of aëration is superfluous, for the so-called cow taste and odor are not present and do not have to be gotten rid of. Thus dangerous and troublesome manipulation and agitation of the milk, not to mention prolonged exposure to the atmosphere, are avoided. In one dairy milk drawn into one of these pails in a clean milking room, is put immediately into bottles, and these are put in ice water, and in a fraction of a minute the necessary reduction of temperature is begun. These bottles are sealed up with an inner and an outer seal, and a guarantee is placed between the seals that the bacterial content of the milk shall not exceed 5,500 per cubic centimeter when delivered.

Any other dairy can be conducted on similar lines, and can achieve as good results as those already detailed.

As said above, the production of certified milk is no longer beyond the reach of any poor farmer or small dairyman. The consideration that the simple devices described in this paper are likely to revolutionize modern dairying and ought to be of incalculable benefit to humanity, affords, I believe, sufficient excuse for having taken up the time of the Section in describing them.

It is curious that the exhaustive work of Swithinbank and Newman,[8] published last October, says nothing about covered milk pails, although the bacteriologic work therein described is highly confirmatory of much of that done at the Storrs Experiment Station. It must be borne in mind, however, that all really great improvements in human industries are in the direction of simplicity and common sense, and that is the direction in which the covered milk pail points.

TABLE A.

Bacterial Count of Fresh Certified Milk.—The analyses were made by taking samples from bottling machine and planting them immediately after milking. This milk was produced under best conditions, new milking barn, etc.

Sept. 9, 4 samples	75	Dec. 11	915
Sept. 9	170	Dec. 12	100
Sept. 9	735	Dec. 14	900
Sept. 9	610	Dec. 15	1,825
Dec. 10	955		
		Average	628

TABLE B.

Certified Milk.—Bacterial count of milk 24 hours old, produced in new milking barn kept under 45 F.

Sept. 1	1,970	Sept. 14	897
Sept. 2	335	Sept. 15	155
Sept. 3	3,110	Sept. 17	975
Sept. 4	285	Sept. 18	755
Sept. 5	2,325	Sept. 21	1,280
Sept. 6	750	Sept. 22	140
Sept. 7	255	Sept. 23	210
Sept. 8	100	Sept. 24	141
Sept. 9	...	Sept. 25	76
Sept. 10	455	Sept. 28	265
Sept. 11	420	Sept. 30	853
Sept. 12	320		
		Average	730
Dec. 1	170	Dec. 9	130
Dec. 2	247	Dec. 11	447
Dec. 3	370	Dec. 13	1,062
Dec. 4	503	Dec. 14	88
Dec. 6	150	Dec. 15	1,070
Dec. 7	200	Dec. 16	810
Dec. 8	847		
		Average	40

This is our best milk, milked in milking barn; cow carefully groomed, etc., and the covered milk pail used.

Oct. 1	302	Oct. 30	77
Oct. 14	560	Oct. 31	588
Oct. 29	90		
		Average	323
Nov. 1	1,455	Nov. 14	400
Nov. 3	197	Nov. 15	200
Nov. 4	260	Nov. 16	122
Nov. 5	65	Nov. 17	188
Nov. 6	45	Nov. 18	109
Nov. 10	138	Nov. 30	155
Nov. 11	130		
Nov. 13	215	Average	207

Average count certified milk made in new barn, under utmost sanitary precaution:

Sept., 1903	730 bacteria per c.c. milk.
Oct., 1903	323 bacteria per c.c. milk.
Nov., 1903	267 bacteria per c.c. milk.
Dec., 1903	469 bacteria per c.c. milk.
Average for four months	447 bacteria per c.c. milk.

8. Bacteriology of Milk, London, 1903.

TABLE C.

Count of bacteria in milk twenty-four hours old (dusty cow barn) with no precaution whatever, excepting that the covered milk pail (with the sterile cheesecloth diaphragm) was used and the cloth was changed every two cows:

Sept. 7	4,970	Dec. 3	1,693
Sept. 8	417	Dec. 4	522
Sept. 9	772	Dec. 6	255
		Dec. 7	235
Oct. 29	172	Dec. 8	495
Oct. 30	127	Dec. 9	262
Oct. 31	695	Dec 11	710
		Dec. 13	1,225
Nov. 18	425	Dec. 14	560
Nov. 30	395	Dec. 15	1,027
		Dec. 16	852
Dec. 1	385		
Dec. 2	463	Average	793

Two samples of this same milk were tested when "fresh" and gave results as follows:

Dec. 14	575	Dec. 15	930
		Average	752

TABLE D.

Counts of bacteria in milk milked in old-fashioned "open pail" in old dusty barn and with no special sanitary precautions. The milk tested was, some of it, bottled and cooled immediately after milking and tested when twenty-four hours old. Other samples were tested "fresh." These averages are very low for milk produced under above conditions. The weather was very cold and unfavorable to the growth of bacteria. Also, these samples were tested under most favorable conditions, i. e., when "fresh" and after proper cooling, the bottled milk being kept below 45 F. for twenty-four hours.

FRESH MILK.		MILK 24 HOURS OLD.	
Dec. 2	675	Dec. 3	6,525
Dec. 3	2,725	Dec. 4	7,000
Dec. 4	2,285	Dec. 6	16,895
Dec. 7	7,175	Dec. 9	3,465
Dec. 8	550	Dec. 10	1,835
Dec. 9	2,075	Dec. 13	6,750
Dec. 11	1,755	Dec. 14	1,223
Dec. 12	715	Dec. 16	2,485
Dec. 15	2,835		
Dec. 17	1,900	Average	5,772
Average	2,269		

TABLE E.

Milkings in Sanitary Stables.	The Closed Pail.	Old Fashioned Open Pail.
Bacteria per c.c.	449 (Avg. 70 anal.)	3,569 (Avg. 56 anal.)
Highest count made in any single analysis	1,525	16,895
Lowest count made in any single analysis	5	290

The number of bacteria in milk from the closed pail is 12½ per cent. of the number in the open pail. Therefore, the closed pail keeps out 87½ per cent.

Milkings in Old Barns.	The Closed Pail.	Old Fashioned Pail.
Bacteria per c.c.	3,041 (Avg. 74 anal.)	11,120 (Avg. 58 anal.)
Highest count made in any one analysis	9,000	100,800
Lowest count made in any one analysis	330	950

The percentage kept out by covered pail was, therefore, 73.

TABLE F.

TOTAL AVERAGES.

Average "fresh certified" milk, average of 70 analyses	449
Average bottled certified milk, 24 hours old, 45 F.	447
Average milk produced in sanitary stables in old-fashioned open pail, 56 analyses	3,569
Average fresh milk produced in old barns with North's pail, average 74 analyses	3,041
Average bottled milk, old barn as above, 24 hours old, 45 F.	793
Average fresh milk produced in old barn, open pail, average of 59 analyses	11,120
Average bottled milk produced in old barn, 24 hours at 45 F.	5,772

TABULATED RESULTS—AVERAGE BACTERIA PER C.C.

	Fresh Milk.	Bottled Milk Kept 24 Hrs. at 45° F.
Milked in the covered pail in sanitary milking barn	628—1st Series 449—2d Series	447
Milked in the covered pail in old style dusty barn	3,041—2d Series 752—1st Series	793
Milked in old style open pail in old style dusty barn	11,120—2d Series 2,269—1st Series	5,772

DISCUSSION

ON PAPERS BY DRS. BRUSH AND NEWTON.

DR. J. P. CROZER GRIFFITH, Philadelphia, said that sterilization and pasteurization, good as they are, are not the things we want. The one thing is to get pure milk. Sterilization and pasteurization may kill the germs present in the milk, but they do not destroy the poisonous products already introduced. We sterilize or pasteurize the milk only when we can not do anything better. We have been accustomed to believe that a really pure milk can only be produced at a greatly increased cost. When we consider the very small amount of money that the farmer receives for his milk, it can scarcely be expected that he will take great pains with it. The ordinary milk that reaches a large city goes through several hands before it gets to the consumer, and the farmer receives a very small amount as his share. If Dr. Newton's records can be proved to hold good, as seems to be the case, then there is no reason why we should not impose a decidedly smaller bacterial limit than is now done. This subject has been frequently discussed in Philadelphia, and Dr. Griffith believes that eventually a certain bacterial count will be decided on. The milk commission of the Philadelphia Pediatric Society is now supervising a number of dairies which agree to furnish milk with a bacterial count of not over 10,000 to the c.c., and for this milk they receive certificates. Of course, the milk is investigated in other respects as well, and the dairies are systematically visited by the veterinarian of the milk committee.

DR. F. L. SMITH, Bridgeport, Conn., said that his first year's practice was in the country, and he learned much about milk and its effect on children. A baby that was fed on cow's milk developed cholera infantum. On investigation it was found that the cows supplying the milk had broken into a cornfield and made a hearty meal of fresh corn. Jersey cows are more easily affected by what they eat than any other breed. On his father's farm the cows were once turned into an orchard. They fed freely on the decomposed apples that had been left there, and five became so drunk that they could not stand up. Imagine the effect of that condition on the milk. Some cows were fed on oat straw that contained a little wild mustard, and as a result mustard could be smelled in the milk and tasted in the butter. Turnip tips or turnips, if fed to cows, will impart a strong taste of turnips to the milk. We might, to advantage, use our influence on the farmers and see if we can not educate them in some way, so that they will be taught to produce a better product for us from the infant-feeding standpoint.

DR. LOUIS C. AGER, Brooklyn, N. Y., stated that the milk commission in Brooklyn has been grappling with this question in various ways and in trying to eliminate every possible source of contamination the most recent move is in the direction of having the milk bottled at the farm and not at the creamery. It is a self-evident fact that each handling of the milk makes a difference, and they have found that by using the milk from certain farms, and having it bottled and sealed there, the bacterial count is lowered. This proves the statement made by Dr. Newton that expensive apparatus is not necessary in order to secure comparatively pure milk. If the farm is clean, and those who handle the milk are clean, and the milk is bottled early, we get pretty clean milk.

DR. W. B. ULRICH, Chester, Pa., emphasized Dr. Smith's suggestion as to the importance of teaching mothers how to feed their children. If the profession would pay as much attention to the quantity of the food as to the quality, infants would be better protected. Physicians lose sight of the fact that the purest milk or food will make a child sick if it is overfed. Dr. Ulrich looks on overfeeding as the most fruitful source of digestive disturbance and malnutrition.

DR. THOMAS S. SOUTHWORTH, New York City, disagreed with Dr. Brush in regard to his condemnation of milk sugar and sees no reason why we could not sterilize a milk sugar solution as well as one of cane sugar. Dr. Southworth thinks that we understand the gross chemistry of milk, but the finer point, the nicer adjustment of the milk to the child, has not yet been

worked out. We have passed the day when we considered that we could make cow's milk the equivalent of breast milk. Breast milk is a fluid that is formed by the human mother for the human child, while cow's milk is formed for the calf. That fact should not be lost sight of, and when a child is removed from the breast and artificially fed, it is no longer as Nature intended it, and it is not too strong a statement if we say that the condition is a pathologic one. Dr. Southworth thinks that it is inconceivable that the growth of millions of bacteria in each cubic centimeter of milk should not consume important nutritious elements in the milk, but if we have to deal with old milk, or milk that has been polluted, we must do something to check the vast increase of the bacteria, and that is done by pasteurization. If the milk is pure to start with, pasteurization is unnecessary and undesirable, because it checks the development of lactic acid forming germs and to that extent opens the way to the putrefactive bacteria, which are held in check by the lactic acid.

DR. W. D. SCHWARTZ, Portland, Ind., considers that the danger incident to using large pint bottles with about three feet of rubber tubing attached for nursing bottles should not be lost sight of. Just so long as those bottles and long tubes are manufactured and sold under the name of nursing bottles, just so long will lazy mothers buy them and feed their babies from them. He thinks that the less delay there is in getting the milk from the cow to the infant, the better.

DR. JOHN L. MORSE, Boston, thinks that there is no doubt that the purity of the milk is of the first importance in infant feeding. This fact, however, does not diminish the value of the modification of milk. We can not make a good food for babies out of bad milk, but most babies will not thrive on cow's milk, unmodified, even if it is pure. Milk sugar is a different thing, chemically, from cane sugar, and yeast does not ferment milk sugar.

DR. LOUIS FISCHER, New York City, said that in his experience the further we get away from breast milk, the more trouble we encounter. Hence, his advice is to stick to breast milk. If it is deficient in quantity, supply the balance by using cow's milk. Properly modified raw milk should be advised. Sterilization, because of its well-known bad effects on the milk itself, should be avoided, as prolonged use induces rickets. The raw milk is received from the dairy in a clean state, and the principles of asepsis should be applied to the cow itself, its udder, the milk pail and everything and everybody that comes in contact with the milk before it reaches the consumer. When milk has once been contaminated the pathogenic bacteria or saprophytes may be killed, but the toxins are not destroyed. Dr. Fischer stated that raw milk possesses certain nutritive properties, and the chemical changes induced by even an ordinary temperature of 160 or 170 certainly destroys something that is required for the living baby. More attention should be paid to the little details that pertain to the cleanliness of the stable, the cow and the milker's hands.

DR. SAMUEL MCC. HAMILL, Philadelphia, stated that one of the largest dairies in Philadelphia keeps a very careful account of the cost of the product, and the average cost per quart for delivery in the city is 7¾ cents. These figures were obtained by a very capable man, and in communicating with him he made the statement that the average price of milk was much lower than it should be. The average farmer never takes into consideration the price of his cow, the wear and tear, the equipment, etc., and simply figures the cost of labor and transportation. In Philadelphia the hospitals are now using the very worst milk supplied in Philadelphia, and at a recent meeting of the hospital association it was advocated to establish a bacterial standard of 250,000 per c.c. Dr. Hamill was anxious to have it reduced to 100,000, and thinks that it is just as easy to reach one as the other. Where an initial contamination takes place it is very difficult to limit the number of bacteria.

DR. J. H. CLAIBORNE, New York City, said that when he was very young, like all the rest of us, he was addicted to milk, but since he has been old enough to appreciate the senses of smell and taste he has had an intolerable disgust for milk, which persists to this day. When he came to New York, where the milk is purer than in the part of the country where he was brought up, he first appreciated the cause of his disgust. He corroborated what Dr. Smith said of the effect of cow's food on the milk. On the farm there was one particular field where wild onions were very abundant, and when the cows had pastured there no one could drink the milk.

DR. R. B. GILBERT, Louisville, said that the milk from certain dairies is nothing better than a culture medium and he fails to understand why they do not make use of it in the laboratory instead of bouillon. It is well known that mental anxiety in the mother affects the quality of the milk, and the same is no doubt true of the cow, as, for example, when she is deprived of her calf. In the artificial feeding of infants with cow's milk he has for the past three years adopted the simple procedure of sending the child out to the country where good milk can be obtained from clean and healthy cows. The milk is milked directly into a wide-mouthed pint bottle, and after the nurse has ascertained that its specific gravity is satisfactory, it is fed to the baby immediately, while it still holds its animal heat. Dr. Gilbert has seen wonderful results from this method in cases of scorbutus. The infant should not be overfed. One or two ounces of milk every three hours is enough, and no milk should be given after 8 o'clock at night; nothing after that excepting sterilized clean water.

DR. C. F. WAHRER, Fort Madison, Iowa, suggested that the more important facts be put in suitable shape and published in the lay press, so that the mothers of this country can become acquainted with them. The laity and many of the profession do not read medical journals. We must educate them through the daily papers. He is not in favor of publishing the papers of individual physicians, as that would favor advertising, but would publish a reasonable abstract of the transactions of a certain Section on a given symposium, such as infant feeding, tuberculosis, etc., so that the public will get it right and not as they now do, in a reporter's garbled and sensational write-up.

DR. EDWARD F. BRUSH said that the position he takes regarding milk for infant feeding differs somewhat from the prevailing fashion. For many years he has had a large herd of dairy cows, and also for many years the care of a number of infants, in institutions and homes, and some of his own. With this experience he has been able to bring together the two prominent factors, and the paper he read is the result of his experience. If he were to choose between a dairy in charge of a cross or brutal man, whose habits were perfectly clean, and another herd, in care of a dirty man, kind and merciful, he would prefer the milk from the latter (if there were no contagious disease in either). Certainly the plan of having the milk perfectly clean is one of the advances excellently presented, but sterilization and pasteurization, which we all thought were going to solve the entire problem, is only one of the phases. Clean milk is only one of the many necessary results to perfect milk. We may be able to get certified milk from a farmer whose child is sick with diphtheria or some of the other contagious diseases of childhood. Young children and infants should never be permitted on a farm from which milk is supplied for infant feeding. Some years ago Dr. Brush made a special investigation of the milk-sugar phase of infant feeding. In his experiments he made a weak solution of milk sugar, added yeast, and kept this solution in a warm temperature for four months and, at the end of that time, found that the so-called milk sugar was unchanged; thus it seems that this commercial compound can not be destroyed by fermentation. He fed it to guinea-pigs and recovered a large quantity of it from their urine. Milk sugar of commerce is largely made in Switzerland and is one of the by-products of the cheese factory. After the milk and the more or less putrid rennet has been added, the resulting whey is allowed to evaporate in the open air, and when it becomes thick enough, is put into bags. It is poured in these receptacles with a lot of pine sticks, and when it has become perfectly dry these sticks are taken out covered with crystals, and this is the milk sugar of commerce. Dr. Brush affirms that no living man can guess what is obtained from this process, and it is reasonable to say that milk sugar is about as inert as ground cork, if it

does not contain pathogenic germs or dangerous ptomains. If a child can get perfectly good milk, he does not advocate the use of sugar at all in infant feeding, except when the baby is constipated, and then cane sugar is altogether the best, because we know what we are using. When babies get only the milk he sends them, and are disturbed in their stomachs or bowels, he feels that he is responsible, and never fails to find the trouble, either in his cows or dairy help. Dr. Brush believes that milk good enough to give the baby is worth not less than 15 cents nor more than 20 cents a quart, because the man who distributes it must exercise such vigilance that there will be no rise of temperature from the finishing of the cooling process on the farm, that is, 60 degrees F., and no addition of any older milk.

Dr. R. C. Newton believes that there is no doubt about the exquisite sensitiveness of milk to various sources of contamination. It has been shown that the presence of a single fly in a milk pail will enormously increase the number of bacteria. The lactic acid bacteria are not in the milk when it is drawn, but come in probably from the air. The lactic acid bacteria hold in check the putrefactive bacteria, and to that extent their presence is actually beneficial. Conn makes the statement that the most important problems in connection with the chemistry and bacteriology of milk are still unsolved, and that their solution will probably be found in the study of what we now consider the unimportant bacteria. It has been shown that white mice fed on sterilized milk died within twenty days. Sterilization evidently destroys something the nature of which we do not fully understand, but which is necessary to life and growth. That child will thrive best that is nursed by a mother whose milk is mixed with love. In Dr. Brush's dairy love is evidently an important factor. Every one of his cows is treated just like a lady, which is the only way to treat her; more especially, she should be kept scrupulously clean, like a lady. Milking directly into bottles, to which method Dr. Gilbert referred, has been tried and has failed, because milk differs so much in composition according to the stage of the milking. The first few squirts of milk should be rejected because they always contain bacteria. The first third of the milk is little better than skimmed milk, because the cream has risen to the top of the udder, probably just as it does in a milk-pan after it has been drawn. The best plan yet devised is to milk into a covered pail, and to transfer the milk directly into sterilized bottles, which are immediately cooled. Thus we get the minimum of agitation and of exposure to the air, two great desiderata in handling milk.

THE USE OF NITROGLYCERIN IN THE TREATMENT OF ERYSIPELAS.

J. W. WHERRY, M.D.
Assistant Physician Clarinda State Hospital.
CLARINDA, IOWA.

While many diseases have a more or less specific treatment, which, with slight variation to meet individual peculiarities, will apply to nearly all cases, erysipelas has remained in the uncertain class for which many drugs are used, but for which few, if any, prove very effective.

It is very doubtful if any good results need be expected from local applications, although many methods are recommended. In treating facial erysipelas in this institution each physician has his own favorite topical application which he uses on all occasions. No two of these applications are alike, and the surprising thing about it is that all get equally good results—that is, the same results, in all probability, that they would get without any local treatment. Any application is indicated that will soften the skin and relieve the tension, thus adding to the patient's comfort.

This criticism of local applications will not apply, however, to internal treatment. I believe that the course and symptoms of erysipelas can be very markedly modified by drugs properly used. For several years I used the various drugs recommended in publications on this subject, and, while I obtained variable results, there was always a conviction that the same results would have followed without treatment.

Last spring I had an opportunity to do some experimental work in the treatment of erysipelas, and the unusual and almost unexpected results obtained from the use of nitroglycerin lead me to give the facts to the profession for consideration and verification.

In three of the cases the erysipelas originated on the face; in the fourth case it had its origin near the ankle. Abbreviated records follow:

Case 1.—Woman, aged 57. March 3, 1904. Patient admitted to ward with facial erysipelas. Inflammation originated in left ala nasi and spread rapidly. Temperature 103.4 degrees, pulse 104. Ordered calomel, grs. 3, given in 1-gr. doses every half-hour, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

March 4, 1904. Inflammation involved entire left side of face and right cheek. Left eye closed. Temperature 99.6 degrees, pulse 90. Nitroglycerin, gr. 1/100, every four hours.

March 5, 1904. Entire right side of face involved. Inflammation disappearing from left side. Temperature 99 degrees, pulse 90. Patient eating well and appears comfortable. Nitroglycerin given every four hours during the day; none given at night.

March 6, 1904. Inflammation has disappeared from left side of face and scarcely perceptible on right side. Temperature normal, pulse 78.

March 7, 1904. Inflammation has disappeared. Temperature normal, pulse 74.

Case 2.—Woman, aged 72. March 10, 1904. Patient admitted to ward with erysipelas of left leg having its origin in a slight abrasion about four inches above the ankle. Portion involved is about four by six inches in extent. Temperature 102 degrees, pulse 101. Patient very much prostrated. Ordered calomel, grs. 2, giving one grain every half-hour, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

March 11, 1904. Inflammation extended to and involving the ankle. Temperature 99 degrees, pulse 94. Much less prostration. Nitroglycerin continued.

March 12, 1904. Inflammation has disappeared. Temperature normal, pulse 82. Appetite good. Medicine discontinued. Made good recovery.

Case 3.—Woman, aged 49. Apri. 4, 1904. Patient admitted to ward with erysipelas involving two-thirds of the face. Temperature 103 degrees, pulse 110. Calomel, grs. 3, was ordered given in divided doses, and nitroglycerin, gr. 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

April 5, 1904. Entire face involved. Temperature 99.4 degrees, pulse 96. No prostration, appetite good. Nitroglycerin continued.

April 6, 1904. Inflammation limited to the face and slowly clearing up. Temperature 99 degrees, pulse 90. Nitroglycerin, gr. 1/100, every four hours during the day; none given at night.

April 8, 1904. Inflammation has practically disappeared excepting on right ear. Temperature 98.8 degrees, pulse 82.

April 10, 1904. Patient made a good recovery.

Case 4.—Woman, aged 65. April 6, 1904. Patient admitted to ward with erysipelas involving the nose, left eye and left cheek. Temperature 101.6 degrees, pulse 94. Ordered calomel, grs. 3, in divided doses, and nitroglycerin, 1/100, every three hours. Ichthyol and oxid of zinc ointment applied locally.

April 7, 1904. Inflammation clearing up on nose, but involves the left ear. Temperature 99 degrees, pulse 88 and intermittent. Appetite good.

April 9, 1904. Erysipelas has disappeared except on left

ear. Temperature 98.8 degrees, pulse 80. Nitroglycerin every four hours during the day only.

April 11, 1904. Inflammation has disappeared. Temperature normal, pulse 74, full and regular.

Two years ago this same patient had an attack of facial erysipelas which not only involved the whole face, but spread to the neck and gradually extended down the back, stopping only at the buttocks. The remedies relied on at that time were quinin and the tincture of the chlorid of iron.

I ascribe no virtue to the ichthyol and zinc oxid ointment used locally except its soothing effect on the skin, and in one instance it did not even produce this effect, for the patient would rub it off as fast as it was put on. All these cases presented several features in common as the result of this internal treatment, viz., a reduction of temperature, moist skin, good appetite, steady pulse after the first day, absence of prostration, general feeling of comfort and a fairly rapid disappearance of the inflammatory process.

In view of the above facts I believe I am safe in concluding, either that nitroglycerin is a *sine qua non* in erysipelas, or that I had a marvelous and phenomenal run of good luck. To be sure, four cases are insufficient to establish a positive conclusion, but as the results were so uniform in every case where nitroglycerin was used I feel that I can conscientiously recommend it to the profession without further comment.

New Appliances.

A SANITARY POCKET CUSPIDOR.

J. W. TRASK, M.D.
CHICAGO.

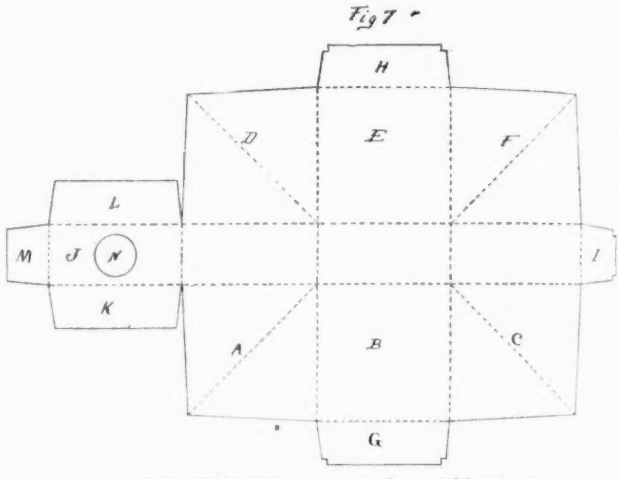
The cup I am about to describe was gotten up especially for use at the United States Public Health and Marine-Hospital Service Sanatorium for Consumptives at Fort Stanton, New Mexico. Many styles of cups had been in use at different times, but none was found very satisfactory. The hand cups were serviceable at the bedside, but the patients found them too clumsy for carrying about. They seemed to dislike the idea of always carrying a cup in the hand. The pocket flasks in use held so little that but a limited number of patients were able to use them and in addition they were continually getting out of order. Nor was there to be found on the market a cup or flask that seemed to meet the requirements any better than those already in use. What was needed was a cup that would go into the pocket and at the same time hold a large amount of sputum, a cup with a destructible filler which, when filled, could be pulled out and burned; a cup cheap in cost and with no small parts such as clamps, springs and hinges to become broken or lost. With these points in mind the following cup was devised:

The cup consists of a metal case, Figure 1—those in use were made of tin—into which a paper filler fits. The sputum is contained in the filler and does not come into contact with the metal. The cup consists of a body and a mouthpiece. The outside dimensions of the body are 3¼ inches high, 3¼ inches wide and 1½ inches thick. The cup is as large as it can be made and still slip into an ordinary coat pocket. It was made this size so that it might contain the largest possible amount of sputum for a pocket cup and thus be used by a larger number of patients, by those expectorating large amounts as well as by those raising less. Smaller sizes could, of course, be made for use by those expectorating but little. The cup is made up of three pieces, the bottom, Figure 2, into which the paper filler, Figure 8, fits, the top, Figure 3, which telescopes over the bottom and its contained filler to within half an inch of the extreme base, and of a cap, Figure 4, which fits over the neck projecting from the top.

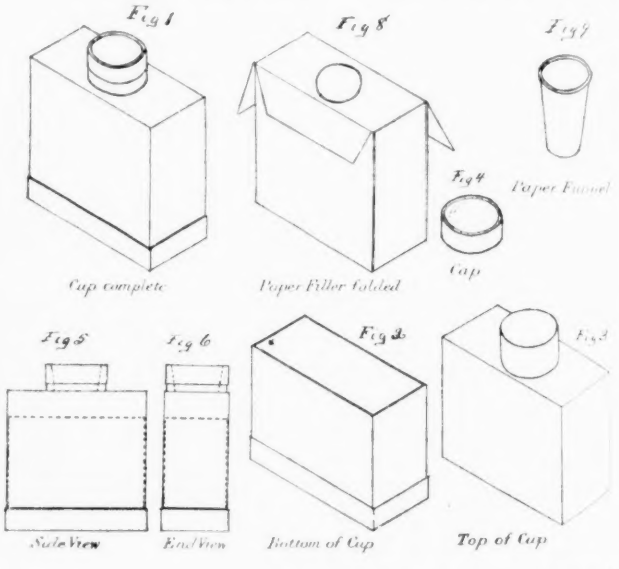
The bottom of the cup, Figure 2, is 2½ inches deep, 3¼ inches long and 1½ inches thick at base. There is a half-inch wide strip of tin soldered around the base, so that the top will slip down to it and no farther, and so that when the cup is together the outside will be smooth.

The top, Figure 3, is 2¾ inches high, 3¼ inches long and 1½ inches thick. It telescopes over the bottom down to the strip of tin. From the top of it extends a neck, which is tapered on its inner surface. This is best shown in sectional drawings, Figures 5 and 6. The top fits well over the bottom and the two are held firmly together by the adhesion of their metallic surfaces.

The cap, Figure 4, is a simple affair and fits over the neck of the top.



Paper Filler extended Dotted lines folding lines



Sputum Cup (About one fourth size)

The paper filler consists of a filler proper and a paper funnel. The filler consists of a piece of water-proof paper cut and stamped as shown in Figure 7. It folds at the dotted lines. The corner squares A and C fold in and up against the side B. The corner squares D and F fold in and up against the side E. The flaps G, H and I then fold down, and flap I clinches flaps G and H at the small notches in their corners, thus holding the folded corner squares A, C, D and F up against the sides B and E. The filler is then inserted into the metallic bottom and the flap J is folded over the top of the filler and the side flaps K, L and M, which are an inch wide, are folded over the dotted lines as shown in Figure 8, and extend down inside of the cup bottom for one-fourth of an inch, thus holding the paper filler top in place. The filler folded is shown in Figure 8. N is a circular hole in the top of the filler.

The paper funnel, Figure 9, has the shape of the frustrum of a hollow cone. It fits into the inside of the neck of the metallic top and its smaller end, which is its lower part when inserted, passes down into the paper filler through the circular hole N, into which it fits snugly. It has a flange at the top which flares over the top of the neck of the cup.

The patient carries the cup in the pocket. To use it he removes the metal cap and expectorates into the paper funnel, through which the sputum passes down into the paper filler proper. When the cup is filled, or better, partly filled, the metal cap is removed, the paper funnel removed and burned, the top of the cup is then removed and the filler extracted and burned, and a new filler and funnel inserted.

This cup will not become soiled with ordinary usage any more than will a patient's clothing or articles handled by him, such as coins, pocket knives and tools, and it can be much more easily washed or boiled, or both, than any of these. Then, too, one of its very important features, considering its efficiency, is its extreme cheapness of manufacture.

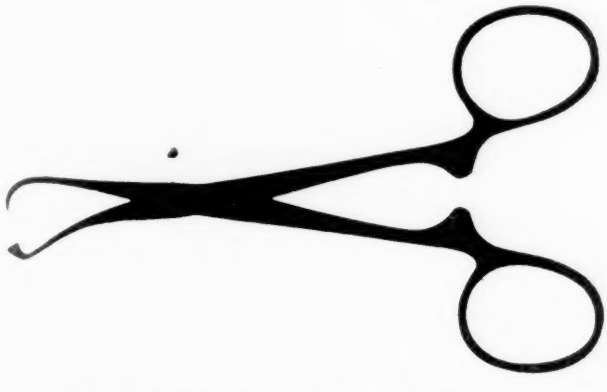
A description of this cup is offered in the belief that it possesses many valuable features not contained in any cup now manufactured.

I desire to thank Surgeon-General Walter Wyman and Dr. P. M. Carring on for placing at my disposal the facilities of the sanatorium for the making of models, and the latter also for suggestions regarding same.

A NEW TENACULUM FORCEPS.

OLIVER C. SMITH, M.D.
HARTFORD, CONN.

While in Paris last summer, I saw an instrument made by Collin, which struck me at once as being an excellent substitute for the pressure forceps, where this is used to grasp and hold the margins of delicate tissues, as the peritoneum, the pleura, the incised walls of visceræ, the bladder, stomach, intestines, etc. The instrument was a delicately made straight tenaculum forceps, similar to the Croenlein forceps, with five interdigitating teeth; two on one jaw, three on the other, and provided with French lock and ratchet clasp.



I brought some of them home, but found on using that the teeth projected and scratched the tissues. This led me to modify the instrument by providing it with two diverging teeth, 1¾ mm. in length on the upper jaw, and with a flat ovoid platform with two perforations on the under jaw. I also gave the instrument a slight curve with the concavity on the under side, which allows it to lie more closely to the abdomen or chest, thereby being less in one's way.

The advantages claimed for these forceps are:

First: The avoidance of crushing the tissues. The appearance of the margins of serous, mucous or muscular tissue after a few moments' application of the ordinary pressure forceps is that of bruised, bloodless and flattened tissue, which certainly invites sloughing and offers a tempting field for infection. This crushing is what we desire when we pinch a blood vessel, and does no harm when grasping tissue which is later to be excised, such as the margins of a hernial sac, but not so when dealing with tissues that are to be placed in apposition for union.

This injury of the tissues is almost entirely avoided by the use of the marginal tenaculum forceps, which makes two harmless punctures.

Second: The lower and projecting jaw of the instrument, being blunt, can not possibly injure an intestine, so that it can be carried fearlessly to the bottom of an abdominal incision to bring up the peritoneum.

Third: As before mentioned, the slight curve of the instrument makes it less in the operator's way.

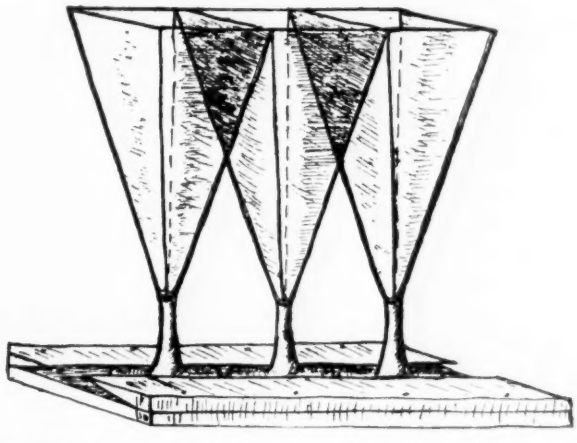
Fourth: It holds the margins of any tissue securely; it does not tear out with considerable traction, and can be allowed to remain on during the entire operation without danger of injuring the structures.

The muscle is compressed to a wafer-like thickness, the color is entirely expressed, and the tissue is made transparent where it has been held by the hemostats, while two tiny punctures mark the spot held by the tenaculum forceps. After several months of almost daily use I can safely testify to the decided merit of this instrument.

IMPROVED URINE TEST GLASSES AND HOLDER.

E. G. BALLENGER, M.D.
ATLANTA, GA.

The value of having the urine passed in two or three glasses, with or without washing the anterior urethra, is too well known to need emphasis. The glasses recommended allow the urine to be collected in several portions without being spilled; the importance of this is evident to every physician making many examinations daily, where offices or dispensaries soon have the urinous odor so offensive both to physician and patient. Those who come needing urinary examinations for shreds, pus, etc., frequently do not have micturition well under their control, and when the stream is once started it is stopped



with some difficulty and pain, or not at all until the bladder is emptied, and so the two-glass or three-glass test is obtained at the expense of a "broken technic" with the urine spilled.

This is obviated by the use of the glasses recommended, which are of a pyramidal shape and on a small base, to be passed into a grooved block to hold them together (See illustration). Their rims being square, allow close apposition and the patient can change the urinary stream from one glass to another without stopping or spilling it. Either two or three glasses may be used as desired, and the urine examined without transferring it to a cylindrical glass, as is necessary with Gerson's, which has a flat bottom instead of a pointed one, and, so far as I am aware, is the only other one obtainable. Another advantage of the glasses recommended is the flat surface, which does not magnify and distort the shreds, etc.

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SYPHILITIC AORTITIS AND ANEURISM.

The probability of there being some relationship between syphilis and aneurism has long been recognized. In 1886 Flint wrote in his Practice of Medicine (sixth edition): "As bearing on the diagnosis, it may be here stated that aortic aneurism is a rare event under 40 years of age, and that syphilis is often a remote cause." Since then we have learned that aortic aneurism under 40 is not an especially rare event, relatively speaking, and that syphilis may maintain a much closer relation to aortic aneurism than that of a remote cause. Among the various facts that have served to direct and fasten attention to the relationship between syphilis and aneurism may be mentioned especially the occurrence of aortic aneurism in notorious syphilitics at a relatively early age—25 to 45—which, of course, does not harmonize perfectly with the generally accepted views as to the rôle of ordinary arteriosclerosis in the production of aneurism.

Already in 1875 F. H. Welch noted severe aortic disease in 60.7 per cent. and aneurism in 32 per cent. of 56 cases of fatal syphilis; and a high frequency of syphilis among patients with aortic aneurism has been brought out in numerous statistical studies. The percentage varies greatly in the different series, being as high as 85 per cent. in Heller's and as low as 18.75 per cent. in von Hansemann's. In most series, however, the percentage exceeds 50; generally the figures are based on the facts secured as to a history of syphilis in the patient. Lichtenstern based his calculations on postmortem findings, and gives a percentage of 39. It will be noted that this average percentage greatly exceeds the average percentage of syphilis in all classes of people in this and European countries.

Von Hansemann insisted that a more trustworthy idea as to the relation between syphilis and aneurism would be gotten by learning how many syphilitics became victims of aneurism. His own figures—3.43 per cent. of 350 syphilitics—he regarded as very small, but Heller, the champion of syphilitic aneurism, points out that after death only a small percentage of those once infected with syphilis present definite syphilitic lesions. In 400 syphilitics Heller found aneurism in 3 per cent., cerebral syphilis in 2 per cent., cardiac syphilis in 2 per cent., pulmonary syphilis in 1 per cent. In 8,669 postmortems Emmerich found aneurism only in 0.5 per cent., and in 745 tuberculous Heller found only 0.13 per cent. to have aneurism. Hence von Hansemann's reversed statistics also show a probable relation between lues and aneurism.

While clinical experience and statistics unquestionably point to a close relationship between syphilis and aortic aneurism, the crucial point whether syphilis may cause aortic changes that stand in direct causal connection with aneurism can be solved only by the help of pathologic anatomy. Here certain difficulties confront us. The syphilitic nature of many chronic inflammatory and sclerotic processes has long been urged, but in many cases this view has met with doubt and more or less opposition, largely because it was not possible to prove unequivocally the syphilitic nature of the lesions in question. This has been and probably will continue to be, at least to some extent, the case with syphilis as the basis of acute aneurism. In most cases aneurisms are studied anatomically so late in their development that the specifically characteristic features possibly present in the fundamental lesion of the aortic wall long since have passed away. The results of recent investigations show, however, that much may be learned by thorough study of material everywhere readily available. Indeed, in view of recent developments, there seems to be little doubt but that our knowledge concerning the influence of syphilis in aortic disease and aortic aneurism has been materially delayed because the question was not seriously and systematically considered either by clinicians or pathologists. Every day pathologists looked at sclerotic and degenerated aortas without seeing any reason to in any way modify the usual off-hand diagnosis of arteriosclerosis or endarteritis chronica deformans, the manifold forms of which undoubtedly include various processes of distinct etiology.

Years ago a peculiar form of mesaortitis was recognized (Wagner, 1866, Helmstedter, 1873), which Heiberg in 1877 was the first to interpret as syphilitic; he based his interpretation on the presence of miliary gummas. Shortly afterward, but entirely independently, Laveran in France reached the same result. Subsequently this mesaortitis was studied more fully by Heller and his pupils, who speak of it as syphilitic aortitis, by Straub, and most recently by Chiari and also by Benda. This mesaortitis is essentially a productive process, located principally in the ascending aorta. When uncomplicated by other forms of sclerosis the intima shows no increase in thickness, but furrows, small depressions and pits that correspond to scars in the media, which also may contain foci of granulation tissue. Occasionally occur areas of necrosis with giant cells, partly of the type of the Langhans' cells, partly of the type of the foreign body giant cell. The adventitia is usually involved, and productive endovasculitis is practically always present here as well as in the media. Chiari came to the conclusion that the mesaortitis may be caused by syphilis, because he found it in one-half of the syphilitics and general paralytics examined. Straub claims to have noted this form of

aortitis in 82 per cent. of 84 general paralytics. Aneurisms were present in many cases in both these series. While the rôle of other infections can not be wholly excluded in the genesis of this fibrous form of mesaortitis, especially as the lesion in its later stages does not present any absolutely diagnostic morphologic appearances, yet it seems that pathologists in general are willing to accept it as syphilitic in the majority of the cases, even though it may be impossible to trace its evolution from definite gummatous productions. Benda, however, has had the good fortune to obtain cases giving the complete picture of aortic gummas—miliary as well as macroscopic—passing into sclerosis or fibrous mesaortitis. The larger gummas were situated on the border of the adventitia and the media; they were irregular in size and in shape, and consisted of a yellow material in the midst of a scar. Benda also found gummas of this kind in the margins of aneurisms; only four or five of such instances having been recorded previously, the most recent by Fabris. Whether productive mesaortitis always represents cicatricial termination of aortic gummas, gross or microscopic, as Benda seems to think is the case, can probably not be determined from the material now at hand, as already indicated, but there is no longer any doubt that syphilis of the aorta, just as syphilis of the heart, may be the basis of aneurisms. Much work requiring the co-operation of clinician and pathologist must be done before all the facts may be learned in regard to syphilitic aneurism of the aorta as distinguished from other forms of aortic aneurism, which, of course, also may occur in syphilitics. Pathologists must study diseased aortas more carefully than in the past and also walls of aneurisms, especially when the latter are multiple. When it was learned that potassium iodid occasionally cures aneurisms, it was first thought that this was due to its antiluetic effect, but before long the coagulative influence of the iodid was accepted as giving the more plausible explanation. May it not be possible, after all, that in certain cases specific treatment promotes removal of gummas in the walls of aneurisms? Certainly the present trend of belief in regard to aneurism and syphilis will stimulate to most careful antisyphilitic treatment in all cases of suspected aortic disease in the young and the syphilitic.[1]

WINTER BEDDING AND INFECTION.

The advent of cold weather, almost every year, is marked by a series of outbreaks of epidemic diseases, for which no definite cause can be found. All the cases in a locality may be traced to one or two original ones, but the origin of these primary cases, as a rule, is unknown. The Chicago Board of Health has suggested one source of contagion which deserves careful investigation. As the cold weather commences, bedding that has been put away during the summer is brought out for use again. It is at least a curious coincidence that contagious diseases, such as measles, scarlet fever, whooping cough, and even the more serious, smallpox, are apt to become epidemic at this time of the year.

The Chicago Board of Health has found during the present year some thirty separate smallpox infection centers, the cause for which would seem to be the infected bedding and the clothing of the undetected cases that occurred late last winter and in the spring. To quote the report: "Because these cases were undetected, no disinfection of their bedding and clothing was secured; with the advent of warm weather, blankets, underwear, etc., were packed away until the abnormally cool weather of the first few days of October brought them into use in artificially heated and poorly ventilated rooms, favorable to the active growth and diffusion of the contagion." The report then goes on to state that it is impossible otherwise to explain the recent outbreak. The families were unknown to each other and did not exchange visits. None of the smallpox patients had been away from the city recently, and they had nothing in common except the development of the disease coincident with the cool weather, which necessitated the use of last winter's heavy clothing.

It is well known that the *materies morbi* of such diseases as measles and scarlet fever, especially the latter, may remain virulent in fomites for long periods, and there are at times surprising proofs of this fact. After a year, clothing that had been in contact with a scarlet fever patient has been known to produce the disease in others, though carefully packed away in camphor or tobacco in the meantime. Letters sent from an infected house, before the disease was recognized as scarlet fever, have been known to convey the disease long distances, proving infective many weeks after they had been sent.

The possibility of infections from this source suggests the necessity for at least domestic disinfection of such articles before they are used in a subsequent winter. Unfortunately, quilts are so made that the ordinary washing and boiling process is out of the question, and blankets shrink and lose their appearance and softness unless very carefully handled; thus household articles that greatly need occasional boiling are not cleansed in any way.

Such bed clothing as will not wash should be submitted at least once a year to the disinfecting influence of dry heat, or to the vapor of some chemical bactericide, like formaldehyd. If this is not done these articles are likely to become receptacles for various forms of virulent micro-organisms, that may find, in some of the organic material in which they are placed, a favorable culture medium while stored away in the dark, warm closets usually provided for them, and which resemble nothing so much as the modern brood chamber for bacteria. A little careful investigation this fall and at the beginning of the winter may bring out so much

1. The literature on syphilitic aortitis in relation to aneurism may be found in connection with Chiari's and Benda's reports in Ver. d. deutsch. path. Gesellschaft, 1904, vi.

confirmatory evidence of this fact that next spring people will realize the necessity for disinfection of bed clothing before putting it away for the summer.

TUBERCULOSIS OF THE PLACENTA.

Many of the problems connected with the transmission of tuberculosis have been restudied as a result of the papers of Koch and von Behring. The former discussed the relation between human and bovine tuberculosis, the latter, the milk transmission of the disease, and both departed so radically from accepted beliefs that their declarations have led to attacks on many cognate aspects of the problem. The paper of von Behring necessitated, among other things, a belief in the old view of von Baumgarten that tubercle bacilli may remain latent in the body for years and subsequently give rise to tuberculosis. This view primarily arose from the fact that the supporters of the inheritance of the germ theory were constantly confronted with the small number of cases of congenital tuberculosis, which rendered a belief in the latency of the germ a logical necessity for them. Notwithstanding the fact that so few cases of congenital tuberculosis have been reported, there have always been those who held that a direct transmission of the germ from mother to child is probably much more frequent than is generally supposed, and among these observers Birch-Hirschfeld and his pupils, and particularly Schmorl, have been prominent.

In a recent paper Schmorl and Geipel[1] once more assert that transmission of the tubercle bacillus from mother to child is much more common than is generally supposed, this belief being based on the results obtained by the study of twenty placentæ obtained from women in various stages of tuberculosis. The authors mention the two possible ways of obtaining evidence of hereditary transmission of tubercle bacilli, namely, examination of the fetus, and examination of the placenta. For obvious reasons the examination of the fetus is not possible, and, furthermore, Schmorl has shown that where the placenta is tuberculous the bacilli are always transmitted to the fetus, which would be expected from the modern view that the placenta is essentially a fetal organ. The authors, therefore, decided to study placental tuberculosis, of which condition up to the present only ten cases have been reported, and of these seven have been recorded by Schmorl or his pupils.

The present report of Schmorl and Geipel covers twenty cases. Of these, eleven were cases of advanced pulmonary tuberculosis, four cases of moderately advanced pulmonary tuberculosis, and three cases of the early stage. There was one case of acute miliary tuberculosis, and one case of tuberculous meningitis. In eighteen of these cases delivery took place at or near the normal time, and in eight of these there was positive evidence of tuberculosis of the placenta. Two cases were delivered at the seventh and eighth month, respectively, and in the seven months' placenta tuberculosis was present. Of the nine placentæ showing tuberculosis, five came from cases with advanced pulmonary tuberculosis, one each from cases of early and moderately advanced pulmonary tuberculosis and one each from cases of acute miliary tuberculosis and tuberculous meningitis.

The pathologic features of these cases are of interest, and show how easily tuberculous lesions in the placenta may be overlooked. In only three of the nine tuberculous placentæ was it possible to make a naked-eye diagnosis of the lesion, though in these three cases it was very apparent. In the other cases the microscope had to be depended on, and the difficulty with which the lesions were detected in some instances is shown by the fact that two thousand sections of some of the placentæ were examined before the lesion was found. Schmorl describes at length the forms which the infection takes, but it is only necessary here to briefly state them. Generally the tubercles develop on the surface of the villi or in the intervillous spaces; in the early stages they may not present the typical lesions of tuberculosis, but these are, as a rule, to be found as the lesion progresses. Rarer forms are those in which the tubercles first develop inside the villi, in the layer of canalized fibrin or in the ectodermic layer of the chorion. The histologic evidence points to the fact that any part of the placenta may be attacked, and that the lesion may occur months before the birth of the child. This latter observation disproves the theory, which has been advanced by some observers, that where tubercle bacilli are found in the fetus they probably are transmitted during labor or on the death of the mother as a result of traumatic changes in the placenta due to the uterine contractions which occur at these times. The source of infection in the great majority of cases is undoubtedly the blood of the mother, though it is possible that in a few instances a local tuberculosis of the uterus is present and that the germs are transmitted from this.

These cases seem to show that tuberculosis of the placenta is far from being uncommon, that infection may occur not only in the late stages of pulmonary tuberculosis or in acute miliary tuberculosis, but also in incipient pulmonary tuberculosis, and that infection of the placenta means infection to the child. It seems unlikely that the child develops tuberculosis in all instances; indeed, Schmorl and Geipel think that if only a few bacilli are transmitted they are in all probability destroyed. If many are transmitted the child probably develops tuberculosis, generally during the first few years of life, the authors think. They do not deny the possibility of the bacilli remaining latent for years, as von Baumgarten claims they do, but they think such an event improbable. These studies are important. It must be remembered that nearly all the reports of cases of placental tuberculosis have been made by Schmorl and his students, and while they are reliable observers, their work should be confirmed before all their conclusions are accepted.

1. Münchener med. Woch., II, No. 38.

THE FUNCTION OF THE THYROID AND THE PARATHYROIDS.

It is well known that total extirpation of the thyroid, as for the relief of goiter, is followed by a peculiar symptom-complex which is called cachexia strumipriva. The symptoms resemble those of myxedema, in which disease there is a great increase of connective tissue in and beneath the skin. The skin becomes thick and dry and the hair falls off. The features are swollen and heavy and the movements clumsy and trembling. The mental powers also gradually deteriorate, and the patient becomes slow and stupid and finally imbecile. In carnivorous animals, as cats and dogs, more acute symptoms are seen after total removal of the thyroid, and the animal usually dies within the first month after the operation. The first symptoms generally are tetanic spasms and more or less severe convulsions. These convulsions may appear as early as the end of the first day, and may last for weeks, but do not always end in death.

We see, therefore, that three very different results may follow the removal of the thyroid in different animals: 1, Cachexia strumipriva; 2, tetanic convulsions leading to rapid death; and 3, tetanic convulsions, from which the animal recovers. The questions have now been raised as to what is the exact function of this gland, and how it is possible that its removal may be followed by such very different symptoms in different animals. The last question has been answered by several investigators by assuming that the parathyroids have a definite function, distinct from that of the thyroid, and that the removal of the thyroid alone gives rise to a chronic disease known as cachexia strumipriva, while the removal of the parathyroids, either with or without the thyroid, gives rise to the acute symptoms which may or may not end in death. It might be assumed, then, that in the operation for goiter the parathyroids were left in place, and no acute symptoms followed the operation, while in the thyroidectomies practiced on cats and dogs they are generally removed, and this explains the acute symptoms seen in these animals. This view is, however, no longer tenable, because it has been shown by Kishi[1] that extirpation of the thyroid in cats and dogs is followed by tetanic convulsions, even if all of the parathyroids are left behind.

Kishi made a careful study of the changes in the parathyroids after removal of the thyroid, and came to the conclusion that they are composed of embryonic thyroid tissue, which may, under special conditions (as after removal of the thyroid), be transformed into normal thyroid tissue. So long as the thyroid is normal, the parathyroids do not functionate, but when the former is diseased or removed, the latter take on the function of the thyroid, and in some instances replace it so completely that the animal does not die, but regains its normal health after a short illness, during which period it may have frequent convulsions. This picture is frequently seen in dogs, while it is unusual in cats, because the latter require more thyroid tissue to maintain life than do dogs; and, therefore, cats nearly always die after total removal of this gland, even if the parathyroids are left behind. Dogs and monkeys more often recover after an acute illness of short duration. Kishi also made a careful study of the blood of animals after thyroidectomy, and found that the red corpuscles rapidly decrease in number, and may fall as low as 1,800,000, while the leucocytes increase in number up to 38,000. He also found degenerative changes in the vessel walls and in some of the organ cells around the blood vessels, and concluded that there is a toxic substance in the blood which, under normal conditions, is destroyed by the thyroid. Kishi further showed by quantitative studies of the constituents of the urine that there are marked nutritional disturbances. This toxic substance he believes to be of the nature of a nucleoproteid which arises from the nuclei of the cells of the meat that is ingested. The cells of the thyroid have the power of taking up the iodin that gets into the system with various articles of food, and they produce with it an iodin-containing globulin. This substance may have an attraction for the toxic nucleoproteid, and combines with it to form a substance which Kishi calls thyreotoxin. This thyreotoxin is now decomposed in the thyroid to form two harmless substances which constitute the colloid substance of the thyroid. The colloid substance slowly passes out of the follicles into the lymph spaces and blood vessels, but as it passes out the cells of the thyroid take out most of the iodin contained in it and again utilize it in producing the iodin-containing globulin.

This theory, which is based on a large number of experimental facts and postmortem findings, explains very well why thyroidectomy in carnivorous animals is followed by acute symptoms and often rapid death, while in man and the herbivorous animals it gives rise only to a chronic condition. Animals living on a meat diet ingest more nucleoproteid, which, according to this theory, gives rise to the toxic material responsible for the symptoms and which is destroyed by the thyroid under normal conditions. When the thyroid is removed from carnivorous animals the system is soon overwhelmed with this toxic material, and there are produced very acute symptoms, such as tetanic convulsions, and later death. In the herbivorous animals, however, only a small quantity of this poison is formed, and there is a very slow poisoning, which gives rise to the condition known as cachexia strumipriva.

1. Virchow's Archiv, 1904, vol. clxxvi, p. 260.

THE SERUM-TREATMENT OF EXOPHTHALMIC GOITER.

That the secretion of the thyroid gland plays an important part in the maintenance of the metabolic equilibrium of the body would seem demonstrated by the effects resulting, on the one hand, from its pro-

duction in excess, as, for example, in cases of exophthalmic goiter, and, on the other hand, from its deficiency, as in cases of myxedema and cretinism. The deficiency in secretion can be, in some measure at least, compensated for by the employment, in one form or other, of the gland or of preparations made from it. This has been done, and with no small degree of success, in cases of myxedema and cretinism especially. The only means at present known of combating an excess of the secretion consists in surgical removal of a portion of the gland, although some of the effects on the circulation can be counteracted by the employment of such agents as adrenal preparations, digitalis, strophanthus, ergot and the like. Partial thyroidectomy is, however, not a simple operation, and its results are not always permanently satisfactory, while the other measures mentioned can not be relied on in the treatment of exophthalmic goiter. Accordingly, the suggestion has been made that a serum might be prepared that would be capable of neutralizing the untoward effects of the excessive activity of the thyroid gland under such circumstances.

Attempts have been made to produce cytotoxins having a specific action on the thyroid and parathyroid glands by the introduction of thyroid gland into lower animals and obtaining the blood-serum from the latter. Also the blood-serum and the milk from thyroidectomized animals have been employed with the same object.

Dr. George Murray,[1] whose name is identified with the successful treatment of myxedema and cretinism with thyroid preparations, proposes the use of serum in which the formation of antibodies has been induced by treating animals with gradually increasing doses of thyroid extract, a method that has also been pursued by Lepine. The latter fed a goat on gradually increasing amounts of thyroid gland from sheep or other goats on successive days, and obtained the blood-serum after the lapse of several months. Murray administered thyroid extract to rabbits by the mouth, and obtained the blood serum after about a month. This he was able to inject subcutaneously into a rabbit without ill effect, and accordingly he felt at liberty to employ it clinically. Two patients were thus treated, but the results were not conclusive. Nevertheless, it is considered possible that if larger animals were employed and larger doses of thyroid extract were given a serum might be obtained that could be used hypodermically in acute cases, or be administered by the mouth in chronic cases in which prolonged treatment would be required.

1. Lancet, Aug. 27, 1904, p. 583.

PROPOSED MIDWIFE ACT IN NEW ZEALAND.

The question of depopulation has stirred up the New Zealanders, and the premier of that country sees an important factor in the excessive infant mortality that exists at the present time. The reform he proposes consists in the education of qualified midwives, none others being allowed to practice, the erection of maternity homes and foundling hospitals under state control or inspection and gratuitous nursing for the very poor supplied by the state. The nurses and midwives should be educated in hospitals under state supervision. Crèches and infant nursing hospitals are also to be provided.

THE CONVEYANCE OF SMALLPOX BY VAGRANTS.

The danger of transmission of smallpox and other diseases by the roving element of society, known as "tramps," is one which it is impossible wholly to prevent and difficult to restrict. The danger is a very real one in the experience of health officers. Emphasis is given to the need of proper restrictions by a report from Dr. Armstrong, health officer of Newcastle-on-Tyne, England, who investigated the subject by sending inquiries to 126 provincial health officers. Replies showed that smallpox was introduced by vagrants in 57 out of 111 districts (with a population of 20,000 and upward, where an epidemic had prevailed), and that in 25 of these 57 districts, spread of the infection occurred from vagrants. The importance of the matter has been appreciated by the London County Council, which has asked for a convention of the sanitary authorities of England and Wales to consider the subject and to endeavor to provide a remedy. We can not go back to the days of walled cities and passports, but there remains vital need for the restriction of the freedom of the tramp.

THE CURABILITY OF PULMONARY TUBERCULOSIS UNDER SANITARIUM TREATMENT.

Within the last few years numerous reliable statistics have been published bearing on the curability of pulmonary tuberculosis. In the majority of these it is to be noted that although the patients were traced, the ultimate condition of their lungs was not reported on by a physician, and, further, that the term "well" or "recovered" used in connection with such patients does not usually denote whether the patient is well enough to work at his ordinary vocation, or whether he is merely free from symptoms of the disease. In his recent report[1] of the last three years' work of the Friedrichsheim Sanitarium, Rumpf was able to follow nearly all his patients (over 97 per cent.) for from three to four years after their discharge, and was able to have the report of a physician as to their pulmonary condition. The real criterion of cure Rumpf considers to be the ability to perform daily work. Of the patients who entered the sanitarium in the first stage of the disease, it was found that 70 per cent. were able to work three to four years after discharge, while of those who entered in the third stage the percentage of deaths increased each year after discharge. The patients who commenced treatment in the second stage of the disease held a middle place, a fair number recovered, but not a few died. Summing up the results, Rumpf states that of those entering in the first stage, 70 per cent. are able

1. Münchener med. Wochenschrift, II, No. 38.

to work at the end of three or four years; of those entering in the second stage, 55 per cent.; of those entering in the third stage, 23 per cent. Such results place the prognosis of pulmonary tuberculosis in a rather more favorable light than many of the recent statistics would lead us to expect; they serve to emphasize the fact, which can not be too often stated, that the percentage of cures is in direct ratio to the number of early diagnoses.

UNUSUAL COMPLICATIONS OF MEASLES.

The micro-organism of measles is yet to be isolated and the effects of its biologic activity await demonstration. The symptoms of the disease are dependent largely on the localization of the morbid process to the mucous membrane of the respiratory tract, and complications of toxic origin are of rather uncommon occurrence, although a considerable number of cases in which cerebral and spinal disorders developed in the course or sequence of measles have been placed on record. For this reason the occurrence of polymyositis and polyneuritis in connection with measles would seem to be worthy of note. In a joint communication Dr. W. Jessen[1] reports a case of the former complication and Dr. E. Edens one of the latter. The first occurred in a woman, 32 years old, in whom the rash of measles appeared on the sixth day of an illness, and symptoms suggestive of articular and muscular rheumatism on the sixteenth day. When the patient came under observation, she presented edema of one foot and tenderness of the corresponding lower extremity. Active movements were restricted and attended with muscular pain. Later pain appeared also in the opposite lower extremity, together with edema and thickening and induration of the musculature, while the overlying skin became tense and glistening. The symptoms persisted for about a month and then subsided gradually, recovery eventually taking place. There was no doubt as to the diagnosis of measles, the mother of the patient after attending the latter also being attacked by the disease. The second case occurred in a girl, 16 years old, in whom symptoms of polyneuritis developed in the course of a severe attack of measles complicated by bronchopneumonia and otitis media. The two cases cited teach, in conformity with an abundant clinical experience, that the exanthemata are not to be ignored, but they must always, in mild as well as in severe cases, be considered as possible factors in the development of even serious complications.

Medical News.

CALIFORNIA.

Hospital Incorporated.—The Good Samaritan Hospital of San Francisco has been incorporated with a capital stock of $100,000.

Personal.—Dr. Hiram N. Rucker, Merced, has been appointed superintendent of the Masonic Widows' and Orphans' Home, at Decoto, and assumed charge November 1.

Decision in Re Osteopaths.—The secretary of the State Board of Health states that an osteopath can not sign a death certificate and gives as his authority Attorney-General Webb, who cited with his approval the decision of former Attorney-General Tirey L. Ford, who said:

> I conclude that an osteopathist is not a physician within the meaning of Section 3084 of the Political Code, or the municipal corporation act, so called, hereinabove referred to, and that he can not, therefore, sign a death certificate as a physician as the word is used in the statutes.

ILLINOIS.

Board Awarded Medal.—The State Board of Health has been awarded a gold medal for its exhibit in the section of hygiene at the Louisiana Purchase Exposition.

Provides Hospital in Persia.—Mrs. Simon Reed, Lake Forest, has donated $7,000 to the Presbyterian Board of Missions, to be used for the erection of a hospital at Oroomiah, Persia.

Diphtheria.—It is reported that there are 8 or 10 cases of diphtheria in East Peoria, and closure of the schools is proposed.——Diphtheria is prevalent near Shirley, and schools are being closed through fear of a general epidemic.

Personal.—Dr. Aurelius T. Bartlett, Virden, has moved to St. Louis.——Dr. Daniel Lichty, Rockford, has succeeded the late Dr. Edward P. Catlin as a member of the local board of pension examiners.——Dr. James D. Whitley, Petersburg, has resumed practice after a long and severe illness.

Smallpox Warning.—The State Board of Health has issued a circular to local health authorities throughout the state, calling attention to the prevalence of smallpox, the too common carelessness as to vaccination and other precautions; the present virulent nature of the disease and the necessity of taking immediate measures to safeguard the people of the state against the disease.

Chicago.

Home Again.—Dr. Nicholas Senn has returned from his trip around the world and has resumed practice.——Dr. and Mrs. Ferdinand C. Hotz have returned from Europe.——Dr. Thomas J. Jackson and family have returned from Europe.

A Low Mortality.—The deaths for the week ended October 29 numbered 412, equivalent to an annual death rate of 11.14 per 1,000. Consumption was the chief cause of death with 54; violence caused 39 deaths; acute intestinal diseases, 34; pneumonia and Bright's disease, each 32; heart diseases, 30; diphtheria, 10, and typhoid fever, 7.

Vaccination and Smallpox.—Upward of 270,000 vaccinations have been performed in the city since the first of the month—more than 40,000 by officers of the department and the remainder by private physicians. Twelve new cases of smallpox were discovered during the week, but no new center of infection; they are all traceable to the previous cases. Of the 12, only 2 had ever had vaccination even attempted; these two, 31 and 55 years of age respectively, exhibit old, imperfect scars made in childhood.

Drainage Canal and Typhoid.—A dozen years ago Chicago had the highest typhoid death rate of any large city in the civilized world. To-day its rate is among the lowest. During the four years 1889-1892 inclusive there were 4,747 deaths recorded from typhoid fever—an average rate of 10.86 in every 10,000 of population. In the four years since the opening of the Drainage Canal there have been 2,235 such deaths—an average of 3.09 in every 10,000 of population. These figures show a reduction of nearly three-quarters (74.8 per cent.) in the typhoid mortality rate.

INDIANA.

Typhoid at Carmel.—There have been 11 cases of typhoid fever in Carmel, all of school children in the public school. The school well is suspected.

Diphtheria in Institution.—There were 68 cases of diphtheria, with 3 deaths, the first week in October at the Miami County Orphans' Home at Mexico. The first cases were, as usual, diagnosed as tonsillitis.

Hidden Scarlet Fever.—The county health officer discovered 5 unreported cases of scarlet fever, October 25, in Woodruff Place, a suburb of Indianapolis. All the cases were attended by well-known physicians. It is probable that prosecutions will be made.

Impure Water.—The Indianapolis Water Company, which has often been openly accused of furnishing polluted water, threatens to ask for an injunction against the new United States Army post if the effluent from the septic tank and sewage filter beds is allowed to run into Fall Creek. This, we are informed, is likely to lose the post to Indianapolis.

1. Berliner klin. Woch., Aug. 8, 1904, p. 847. Abstract in THE JOURNAL, page 922.

The Terre Haute Epidemic.—In the smallpox epidemic at Terre Haute, which ended October 18, 114 cases were reported and 12 deaths. Most of the cases were very severe, and there were three cases of hemorrhagic smallpox, with three dying. Two deaths from hemorrhagic smallpox also occurred in a farmer's family in Warren County the last week in September.

Banquet in Honor of McCormack.—The societies which comprise the Thirteenth Councilor District gave a banquet at the Oliver Hotel, South Bend, October 20, in honor of Dr. J. N. McCormack, national organizer of the American Medical Association, at which Dr. James B. Greene, Mishawaka, responded to the toast of "The Pioneer Doctor"; Dr. Richard B. Dugdale, South Bend, to "The President of the County Medical Society and His Troubles"; Dr. William H. Thompson, Winamac, to "The General Practitioner"; Dr. John C. Fleming, Elkhart, responded for "Our Absent Sisters"; Dr. Charles A. Daugherty, South Bend, explained "Why Every Physician Should Be a Member of His County Medical Society"; Dr. James W. Milligan showed how "Others See Us"; Dr. Charles J. Loring, Rochester, responded for "The Country Doctor"; Dr. T. A. Burr, South Bend, described "The Clinician of To-Day and Yesterday," and Dr. McCormack gave some "Professional Reminiscences of Dixie." Dr. John B. Berteling, South Bend, was toastmaster.

KANSAS.

Epidemic at Wellington.—It is reported that there are 30 cases of typhoid fever and several of diphtheria in Wellington. The typhoid infection has been traced to ice cream served at a wedding feast.

Infectious Diseases.—During the last month there were in Topeka 31 cases each of diphtheria and scarlet fever, with 5 and 3 deaths respectively, 9 cases of smallpox, 2 of measles and 3 of chicken-pox, and 13 deaths from consumption.——Three district schools south of Emporia have been closed on account of epidemic diphtheria.

Extension of School for Feeble-Minded.—The State Board of Charities has confirmed the recommendations contained in the last report of Dr. C. S. Newlon, superintendent of the State School for Feeble-Minded Youths, which provide for a new four-story dormitory to cost $40,000, an engine house, residence for superintendent, etc.

MARYLAND.

Personal.—Dr. L. Gillis Owings, Ellicott City, is at the University Hospital, Baltimore, suffering with typhoid fever.

Convicted for Abortion.—Dr. Joseph C. Orlendorff, tried at Upper Marlboro, on the charge of manslaughter in causing the death of Margaret Hall at his institute there by malpractice, was convicted October 27.

Protest Against Pardon.—The State Department has been flooded with protests against the pardon of Dr. George C. Worthington, a convicted abortionist, now serving his term in the penitentiary, and it is said in view of these protests the governor will not interfere.

State Board of Health Reports.—The annual reports of the State Board of Health for 1902 and 1903 are just issued, the delay being due to the fire last February. In the report for 1903 the secretary criticises some of the county officials for alleged indolence and indifference. St. Mary's and Garrett, he says, are the worst offenders in this regard, and but for their shortcomings Maryland would now be admitted to the group of registration states. More care in keeping birth and death records and better organization are strongly urged. The secretary recommends the establishment of an annual school or institute which all health officers shall be compelled to attend.

Baltimore.

Personal.—Dr. Charlotte S. Murdock sailed for Liverpool October 22.——Dr. John C. Schofield was painfully injured by being thrown from his buggy, October 20.

Medical Men Officers of War Society.—The Society of the War of 1812 elected the following among other officers, October 25: President, Dr. Albert K. Hadel; vice-president, Dr. James D. Iglehart; members of executive council, Drs. Charles E. Sadtler and Nicholas L. Dashiell.

MASSACHUSETTS.

Malden Isolation Hospital.—The council of Malden has recommended an appropriation of $15,000 for the construction of a hospital for contagious diseases on the land of the poor farm, to accommodate 24 patients.

Diphtheria on the Increase.—There were 67 cases of diphtheria, 5 of which were fatal, reported to the Boston Board of Health for the week ended October 29. This is an increase of 60 per cent. and would be alarming except that most of the cases so far reported are mild.

Personal.—Dr. Robert A. Blood, Charlestown, formerly surgeon general, has moved to Brookline.——Dr. John B. Beebe, Great Barrington, has been appointed medical examiner of the fourth Berkshire district, vice Dr. Whitemell P. Small, resigned. ——Dr. Roscoe D. Perley, Melrose, has been appointed medical examiner of Middlesex County, vice Dr. Ernest S. Jack, resigned.——Dr. John B. Tyler, Billerica, sails for home from Italy early this month.——Dr. Elisha S. Lewis, Springfield, sails for Europe early this month.

Free Issue of Vaccine Virus.—The Massachusetts State Board of Health has begun to issue free vaccine virus in accordance with the act of the legislature in 1903. This is produced and distributed in the same way as the diphtheria antitoxin, which has largely replaced the product of private manufacturers throughout the state. Both the antitoxin and vaccine virus are prepared under the close supervision of Prof. Theobald Smith, and the total expense is but a few thousand dollars per year. The lymph is issued in the glycerinated form in sealed tubes, and also in vials containing 25 or more doses, according to the desire of the physicians who use it. The circular sent out by the board urges the vaccination of all children before they are one year old and again at the age of 10, with careful inspection to determine success or failure. Careful observance of these rules with the easy access to free vaccine of the best quality, it is expected, will prevent the recurrence of the smallpox epidemics of the past few years.

MICHIGAN.

Personal.—Dr. Horace H. Phillips, Cassopolis, has been elected county physician of Cass County, to succeed himself. ——Dr. Arthur D. Holmes and family, Detroit, returned October 22 after an absence of a year in Europe.

Postgraduate School for Detroit.—Plans are in progress to establish and maintain a postgraduate school of medicine and an additional hospital in Detroit. The following committee has been appointed to devise more definite plans: Drs. Lewis E. Maire, Frank D. Summers and Leo Breisacher.

Another Anti-Vaccination Lie Nailed.—A circular issued by the State Board of Health says:

An item has been going the rounds of the press relative to the death of William Taylor, a child at Port Huron, alleging that "The parents believe that his death was caused by vaccination." But an official report to the secretary of the State Board of Health clearly proves that the alleged belief had no foundation in fact. The report says that a short time after vaccination the child was taken sick with bowel trouble and had no medical attendance, the parents being "Christian Scientists." After the death of the child the coroner called in a reputable physician and found the vaccinated arm, aside from a small scar, was exactly the same as the other, and showed no sign of having been inflamed. The physician and the coroner came to the conclusion that the child had died of "enterocolitis"—inflammation of the bowels. It appears that the parents belong to a sect whose members do not believe in vaccination, nor in calling a physician, and undoubtedly would have been pleased to have had the death recorded as due to vaccination, especially as otherwise there is a suspicion as to the effect of the lack of proper medical attendance for the relief of the inflammation of the bowels.

NEW JERSEY.

A Merited Honor.—Dr. Archibald Mercer, who recently retired after long service as an active member of the surgical staff of the City Hospital, was unanimously elected by the trustees surgeon emeritus of the hospital.

Physician Automobilists to Organize.—Physicians of New Jersey are planning a national organization of automobilists. A meeting will be held in Camden in January, when the Physicians' Automobile Club of New Jersey will hold its annual meeting.

Diphtheria in Salem.—Some of the public schools of Salem, Petersburg, Beasley's Point and Palermo have been closed on account of the prevalence of diphtheria. Camden is also suffering from a similar outbreak. The disease seems to be extremely virulent; 18 cases were reported in three days in Camden.

Physicians Ill.—Dr. Walter Steadman, Hoboken, who has been ill for three months with typhoid fever, is now convalescent.——Dr. Robert C. Ribbans, Newark, has been seriously ill with septicemia arising from an operation wound on the finger.——Dr. Rufus B. Whitehead, Elizabeth, who has been threatened with phthisis, has gone south for the winter.

Loving-Cup Presented.—The medical profession of Atlantic City, on October 17, presented Dr. Byron Cook Pennington with a handsome silver loving-cup, suitably inscribed, in token of their appreciation of the sterling worth and faithful work of Dr. Pennington during his 24 years of practice in Atlantic City. Dr. Pennington sailed, October 22, for Bermuda, where he will spend the winter.

NEW YORK.

Personal.—Dr. Floyd S. Crego, Buffalo, is in Europe.——Dr. Montgomery Crockett leaves Buffalo for a year. He will first go to Asheville, N. C., and in the spring will go to Europe, remaining until the fall of 1905.

Another Drug Crusade.—The first step in a crusade which the New York State Medical Association has declared against druggists who sell impure drugs and traffic unlawfully in poisons, was taken when the agent of the association's attorney made a sampling tour among druggists. The samples will be sent to the health board for analysis and, if evidence of adulteration is found, the association will take drastic measures. The State Board of Pharmacy has inspectors out constantly endeavoring to obtain evidence of impure drugs.

Proposed Consumptive Sanitarium Impossible.—Despite the protest of the medical fraternity and philanthropists generally, the Goodsell-Bedell bill has been passed, prohibiting the establishment of a hospital for consumptives without the consent of the board of supervisors of the county, and of the town board of the town, in which the hospital or camp is sought to be located. A previous law provided that the consent of both the local and the state board of health must be obtained before such a hospital could be established. This will make it impossible, without further legislation, to establish the sanitarium for poor consumptives in an isolated part of Orange County which the health authorities of New York City had intended to be used for this purpose.

New York City.

Subway Contributes to Hospitals.—It was announced that the subway company would give to the hospitals of the city all the money collected from the sale of tickets on the opening day, October 27. It was ascertained that this sum would be in the neighborhood of $5,600.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended October 22, 57 cases of measles, with 3 deaths; 317 cases of diphtheria, with 30 deaths; 123 cases of scarlet fever, with 7 deaths; 41 cases of chicken-pox; 337 cases of tuberculosis, with 143 deaths; 125 cases of typhoid fever, with 17 deaths, and 18 deaths from cerebrospinal meningitis.

Pneumonia Investigation.—At the request of this commission Dr. Darlington has prepared two large charts, which show the increase of pneumonia since 1870. The pneumonia charts show that the pneumonia deaths have increased nearly 50 per cent. in thirty-three years. The highest death rate was in 1892 and 1893, when there was an increase of from 75 per cent. to 85 per cent. over that of 1870, these being the years of the influenza epidemic. Another chart gives the comparison between the death rate from pneumonia and that from pulmonary tuberculosis from 1870 to 1893. For the first twenty years of this period tuberculosis was far more deadly. In 1891 the pneumonia rate exceeded that of tuberculosis and only once since then has the pneumonia rate been lower.

PENNSYLVANIA.

Personal.—Dr. Addison M. Rothrock, West Chester, has assumed his duties as resident physician of the Mount Alta Sanitarium for Consumptives.

Health Officers Close School.—On account of the existence of a great deal of contagious disease among the children attending St. Nicholas' German Catholic school, Wilkesbarre, the health officers have ordered the school closed for an indefinite period.

Philadelphia.

Personal.—Dr. Richard H. Harte has resigned his position as attending surgeon to the Episcopal Hospital. The vacancy on the surgical staff will be filled by the board of managers at its meeting, November 24.

Eminent Japanese Visitors.—A party of four distinguished professors from the Imperial University at Tokio visited Philadelphia, October 25. All are graduates of Berlin University. They were Dr. L. Sato, professor of surgery; Dr. K. Tamba, professor of pharmacy, and Profs. T. Yssisaka and A. Nissimura.

Uncinariasis.—The *Uncinariasis americana*, or hookworm, was discovered in a patient by Dr. M. H. Fussell in the University Hospital. The patient has been an inmate of the institution since August last. The true character of his ailment was totally obscure until the parasite was found. Dr. Fussell presented a paper on this subject and exhibited specimens at the last meeting of the College of Physicians.

Equips Medical Laboratories.—The University of Pennsylvania has just completed, at the cost of $7,000, the equipment of the new medical laboratories. The laboratories were used for the first time, October 31. The donation provides the laboratory of pathologic histology, neuro-pathology and gynecologic pathology, with 50 microscopes each, also one dissecting microscope, 40 1/12 oil immersion lenses, 1 hydraulic press, 1 centrifuge, 1 thermostat, 1 spectroscope and 1 complete outfit for photomicrography. It also provides the 4 lecture rooms with projectoscopes, 2 for lantern slides and 2 for microscopic sections.

Health Report.—Diphtheria is widely prevalent throughout the city and is increasing with marked virulence, as 18 deaths resulted from the disease during the week, an increase of 10 over those of last week. The new cases numbered 98, an increase of 2 over the preceding week. The disease prevails generally throughout the city, and many schools have been compelled to close. The disease is also more or less prevalent throughout the state, and also in the near-by towns of New Jersey. The total death rate for the week shows an increase, numbering in all 407. This is an increase of 27 over those of last week, and a decrease of 59 over the corresponding period of last year. In all there were 244 cases of contagious disease, with 28 deaths reported, as compared with 233 cases and 22 deaths for the previous seven days.

TEXAS.

Personal.—Dr. Henry I. Hilliard, Marshall, was thrown from his buggy, October 11, and seriously injured.

Diphtheria Closes Schools.—Public schools at Mason, Ennis and Hallettsville have been closed on account of the prevalence of diphtheria.

Quarantine Removed.—On recommendation of the state health officer, the governor, on October 24, issued his annual quarantine proclamation raising the embargo against ports in tropical countries, recognized as infected during the summer months.

State Pasteur Institute Open.—The new Pasteur Institute, for the establishment of which an appropriation of $5,000 was made by the last legislature, was opened at Austin for the reception of patients October 1. Dr. Benjamin M. Worsham is in charge of the institute.

Openings of Colleges.—Dallas Medical College opened for its fifth annual session, September 20.——The fourteenth annual session of the Texas Medical College and Hospital, Galveston, was opened with an address by Prof. Alfred E. Thayer, October 3.——Fort Worth Medical College began its eleventh annual session October 3.

GENERAL NEWS.

Western Surgical Association.—The next annual meeting of the Western Surgical and Gynecological Association will be held in Milwaukee, Dec. 28-29, 1904.

Laryngologists at Pan-American Medical Congress.—Dr. G. Hudson Makuen is secretary of the section on laryngology and rhinology of this congress and asks those who wish to contribute papers to send titles to him at 252 South Sixteenth Street, Philadelphia.

American Public Health Association.—The thirty-second annual meeting of this body will be held at Havana, Cuba, Jan. 9-13, 1905, and, as noted in the Correspondence column, arrangements are made whereby one may attend the Pan-American Medical Congress and then go to Havana on the way back to the United States. The secretary of the health association is Dr. Charles O. Probst, Columbus, Ohio.

American Surgeons at the Seat of War.—The general staff has decided to send American surgeons as attachés to the Russian and Japanese armies provided the consent of these two nations can be secured. The military observers now in the field have reported so many interesting details regarding the medical departments of the two armies that it is evident to the general staff that there has been a revolution in the field hospital methods and they regard it as desirable that the American medical department should have an opportunity of profiting thereby.

A New Forgery Scheme.—The profession should be warned concerning a clever forger who has been cashing bad checks in Minneapolis. The man's scheme is novel and so far has proved successful. He writes a prescription and signs some well-known physician's name to it. This he takes to a drug store to be filled. In payment he tenders a check, usually for a small amount, and is usually given the change in cash. The man secured the blanks by telling a downtown druggist that he was a physician recently admitted to practice. His manners and appearance are good and few would take him for a crook. The Minneapolis police have been warned against a gang of forgers and confidence men that have recently left St. Louis and they think the present operator is one of these.

Medical Directory of New York, New Jersey and Connecticut.—The sixth edition of the Medical Directory of New York, New Jersey and Connecticut, compiled under the auspices of the New York State Medical Association, which has just been received, follows the same general order as the editions which preceded it, and is accordingly practical, neat and valuable. The total number of physicians noted in New York state is 11,746; in New Jersey, 2,176, and in Connecticut, 1,282. Polk's directory for 1904 gives the figures as New York state, 13,638; New Jersey, 2,360, and Connecticut, 1,434, and the Standard Directory for 1903-1904 states that there are 12,995 physicians in New York state; 2,245 in New Jersey, and 1,288 in Connecticut. Of the 11,746 physicians in New York state, 4,215 are credited to Manhattan and Bronx, 1,506 to Brooklyn, 121 to Queens, and 65 to Richmond, which makes a total for Greater New York of 5,907 and for the remainder of the state of 5,839.

FOREIGN.

Stabbed by an Insane Patient.—Dr. Vallon was stabbed in the back by an insane inmate in making his rounds at the Sainte-Anne asylum, Paris. The physician was paralyzed on one side at first, but seems to be recovering. The injury was inflicted with a kitchen knife which the patient had secured.

New Hygienic Measure at Rome.—The municipality of Rome has distributed cards to the various drug stores, each printed with the following:

> The undersigned wishes to announce to the Board of Public Health that at No..... of ..... street, there exists cause for injuring the public health in overcrowding of sleeping rooms, filth, defects in the gas, pavements, cesspools, etc.; suspicion of adulteration of foods or beverages. N. B.—Underline the nuisance or defect complained of. No attention will be paid to unsigned communications.

The denouncer signs this card and returns it to the pharmacist, receiving a receipt therefore. It is turned over to the Board of Health and suitable measures are taken. The Italian medical journals regard this innovation as promising good results.

The First German Academy for Practical Medicine.—The first of the new German academies for practical medicine was formally inaugurated at Cologne October 10, with much ceremony. Bardenheuer was mainly instrumental in its organization and he was decorated on the occasion. He has published a *Festschrift* in honor of the inauguration, with articles from his own pen and by his numerous pupils, including Sonnenschein, Graesser, Bayer and others. These new academies are designed to serve as centers for postgraduate study in places without a medical college and to train fledgling physicians and others wishing to take up some specialty. The profession at large regards this innovation with dubious approval.

Correspondence.

Fourth Pan-American Medical Congress.

NEW YORK CITY, Oct. 25, 1904.

To the Editor.—To attend the fourth Pan-American Medical Congress, which will be held in Panama, Jan. 2-6, 1905, will involve a most delightful midwinter trip. The delegates will leave this country by the Atlantic, Pacific and Gulf coasts the last week in December and will return by the same or other routes. The American Public Health Association will meet the following week in Havana, and those who desire to attend both meetings can do so. There are two routes for the physicians from Panama to Havana. The first is by way of Jamaica to Santiago de Cuba by boat and overland by rail to Havana. The second is by water from Panama to Vera Cruz and from there to Havana. The former will probably be the most pleasant.

From Havana, the return trip can be made directly north to New York by water or via Miami or Tampa, Fla., or New Orleans. The connections and dates of sailing are now being arranged.

The Panama government has appropriated $25,000 for the scientific session and the entertainments. The afternoons will be devoted to the scientific sessions and the mornings and evenings to trips and social functions. So far as can be learned, the program in Panama will be a reception on the first day by President Amador of the Panama republic, and the formal opening session of the congress the same evening. On the second day an excursion to the canal in the morning, meeting of the various sections in the afternoon, and a banquet in the evening; on the third day an excursion down the bay to Taboga Island, where a Panama breakfast will be served, scientific sessions in the afternoon and a ball in the evening. On the fourth day an excursion to the United States Army barracks in the morning, section meetings in the afternoon and the formal closing session in the evening. On the fifth day an excursion to the plantation of the United Fruit Company, and in the afternoon those who go to Cuba will sail for Jamaica, while those who intend going to Cuba by way of Vera Cruz, or returning home by way of New Orleans or New York, will remain until the following Tuesday.

The secretaries of the sections of the congress for the United States are:

Dr. A. H. Doty, New York, Hygiene and Quarantine.
Dr. Judson Daland, Philadelphia, Medicine.
Dr. R. Matas, New Orleans, General Surgery.
Dr. H. Bert Ellis, Los Angeles, Eye.
Dr. Hudson Makuen, Philadelphia, Throat.
Dr. Frederick Jack, Boston, Ear.
Dr. C. H. Hughes, St. Louis, Nervous Diseases.
Dr. Geo. Goodfellow, San Francisco, Military Surgery.
Dr. John Ridlon, Chicago, Orthopedic Surgery.
Dr. D. W. Montgomery, San Francisco, Dermatology.
Dr. C. G. Kerley, New York, Pediatrics.
Dr. Noble P. Barnes, Washington, Therapeutics.
Dr. Walter Chase, Boston, Pathology.

Communications from physicians in the United States can be sent directly to these secretaries. Delegates intending to attend the congress, desirous of obtaining information, should communicate with the secretary of the international executive committee in the United States. DR. RAMON GUITERAS,
75 West Fifty-fifth Street, New York City.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

VIBRATION THERAPY.

To the Editor:—I have lately been brought into contact with the promoters and their literature of the "Vibration Therapy" method of treatment. Their literature reads well, and if founded on scientific observations that can be substantiated, is worth attention. I know of no unbiased literature concerning this method—that is, papers written by those not interested commercially, in the exploiting of some particular appliance. Are there any reports or works on this subject by scientific or accredited authorities published that do not bear the earmarks of some commercial interest? Is the "vibration therapy" of sufficient value to the physician to warrant him in spending his time in studying it and the expense of installing the apparatus? Is it a better or more easily applicable form of treatment for certain conditions, such as lumbago, paralysis, neuralgia, neurasthenic conditions, nutritional disturbances, than other well-known remedies that are the universal property of the medical profession, or is it only a "fad," adapted to the purposes of a certain class of practitioners?

N. B. B.

ANSWER.—In Rockwell's work on Medical and Surgical Electricity, Chapter V, pages 635-641, is devoted to vibratory therapeutics. The following articles on this subject have appeared in medical journals: "Vibration Massage in the Treatment of Chronic Prostatitis," by Dr. Louis E. Schmidt, *St. Louis Courier of Medicine*, August, 1903: abstracted in THE JOURNAL, Sept. 12, 1903. "Mechanical Vibration, Its Theory and Application in the Treatment of Disease," by Maurice F. Pilgrim, *Boston Medical and Surg-*

ical Journal, Sept. 10, 1903 "Vibration Massage," by Werneck Machado, *Brazil Medico*, August, 1902. "A Consideration of the Scientific Application of Mechanical Vibratory Stimulation in the Treatment of Disease," by Maurice F. Pilgrim, *Medical News*, New York, Jan. 24, 1903. "Vibration Massage in the Expulsion of Kidney Stone," by G. Klemperer, *Therapie der Gegenwart*, Berlin, October, 1902; abstracted in THE JOURNAL, Dec. 6, 1902, page 1492. Vibration therapy, like massage, which it resembles, seems to have a definite place in the treatment of disease, but like some other methods, it has been used indiscriminately in many conditions for which it was very unsuited.

STATES THAT DO NOT REQUIRE EXAMINATION FOR LICENSE.

PHILADELPHIA, Oct. 15, 1904.

To the Editor:—What states do not require an examination for license to practice medicine? H. W.

ANSWER.—Colorado, Wyoming, Indian Territory, Nevada and New Mexico issue licenses to practice medicine on registration of diploma. Colorado and Wyoming, however, do so only in the case of graduates holding diplomas from colleges having the standard laid down by their boards.

EUROPEAN MEDICAL SUMMARIES.

EL PASO, TEXAS, Oct. 29, 1904.

To the Editor:—1. Is there published in the English language something similar to "Progressive Medicine" or "International Clinics," but covering a field in one or more of the European countries? If so, give price, etc. 2. Is "Braithwaite's Retrospect" still published? E. J. M.

ANSWER.—1. No. 2. No.

Marriages.

JOSEPH GILBERT BEMIS, M.D., to Miss Sarah C. De Yoe, both of Chicago.

JOHN Z. PARKER, M.D., to Miss Mary Elizabeth Rea, both of Pattonsburg, Mo.

CHARLES LONG, M.D., to Miss Helen E. Miller, both of Toledo, Ohio, October 19.

C. T. HELMEY, M.D., to Miss Clara Hahn, both of Humboldt, S. D., October 15.

JOSEPH T. EDWARD, M.D., to Miss Alice Mary Reid, both of Chicago, October 25.

HARRIS G. MINTER, M.D., to Miss Alma Reddick, both of Jakin, Ga., October 19.

HERBERT E. LAROQUE, M.D., to Miss Mabel Britton, both of Baltimore, October 25.

S. LEE MAGNESS, M.D., to Miss Stella F. McConnell, both of Baltimore, October 20.

JOHN F. MACKEY, M.D., Odessa, Mo., to Miss Nellie McVeigh Hopkins of Breckenridge, Mo.

JAMES A. MANNON, M.D., Sherrard, Ill., to Miss Frances Edgar of Cable, Ill., October 19.

JOHN F. CROWLEY, M.D., La Salle, Ill., to Miss Margaret Henseler of Chicago, October 19.

J. HENRY MCNEEL, M.D., to Miss Lynnette Leininger, both of Fond du Lac, Wis., October 20.

Z. M. STORY, M.D., Thomson, Ga., to Miss Willie Spence Jones, of Gainesville, Ga., October 19.

WILLIAM W. MILLIGAN, M.D., to Miss Minerva M. Rankin, both of Burlington, Iowa, October 26.

EDWARD V. MILHOLLAND, M.D., to Miss Mary Katherine Clark, both of Baltimore, October 26.

AUGUST R. ANNEBERG, M.D., Templeton, Iowa, to Miss Bertha Kivits of Des Moines, Iowa, October 25.

WILLIAM EDWARD MACK, M.D., Paradise, Cal., to Mrs. Eva A. Chinn of Los Gatos, Cal., October 15.

ERNEST MCCUE THRIFT, M.D., Madison, Va., to Miss Minnie Merle Giles at Raphine, Va., October 26.

THOMAS K. PROCTOR, M.D., to Mrs. Hallie H. Robertson, both of Sulphur Springs, Texas, September 15.

NEIL DUNCAN GRAHAM, M.D., of Washington, D. C., to Miss Elizabeth Farrow, at Baltimore, October 24.

WILLIAM R. BALL, M.D., Mitchell, S. D., to Miss Helen Beckwith Jones of Prospect, N. Y., September 21.

RICHARD BOOTH, M.D., Lynchburg, Va., to Miss Louise Harris Zimmerman, at Buena Vista, Va., October 26.

FRANK HILTON MCLEOD, M.D., Florence, S. C., to Miss Caroline Goodwyn Nelson of Statesburg, S. C., October 5.

Deaths.

Samuel Warren Abbott, M.D. Harvard University Medical School, Boston, 1862, a member of the American Medical Association, American Public Health Association, American Statistical Association and Royal Statistical Society of Great Britain; for 18 years the efficient and painstaking secretary of the Massachusetts State Board of Health; an authority on vital statistics, author of "The Past and Present Condition of Public Hygiene and State Medicine in the United States," assistant surgeon in the Navy and in the First Massachusetts Volunteer Cavalry during the Civil War, coroner of Middlesex County

DR. SAMUEL W. ABBOTT.

from 1872 to 1877 and for seven years thereafter medical examiner for the same county, was found dead in bed at his home in Newton Highland, Mass., October 22, at the age of 67. Modest about his attainments and never seeking publicity, Dr. Abbott was recognized as being one of the most careful statisticians on medical matters in this country. His state reports have been regarded as models, and their style has been copied in many other states. He had the respect of the entire medical profession of the state. The *Boston Advertiser* pays the following editorial tribute to Dr. Abbott:

> To most people around the state house Dr. Abbott was merely a quiet, hard working secretary to the state board of health. To scientific authorities abroad his name was probably better known than that of any other American, with the possible exception of Dr. Weir Mitchell of Philadelphia. Dr. Abbott's name was signed to the Massachusetts reports, which are the highest possible authority of the kind on many subjects, such as typhoid epidemics, that interest scientists all over the world. It is worth remembering that when the much-heralded "copper treatment" for the Americans in the Panama Canal strip was to be tested it went to the Massachusetts board of health.

William Wotkyns Seymour, M.D. Harvard University Medical School, Boston, 1878, a member of the American Medical Association, British Medical Association, American Association of Obstetricians and Gynecologists, New York State Medical Association and New York State Medical Society; professor of midwifery and gynecology in the University of Vermont for several years, trustee and chief surgeon of Samaritan Hospital, Troy N. Y.; a pioneer investigator in gallstone disease and one of the first surgeons in the United States successfully to operate in this field; the translator of Kehr's classical treatise on "The Diagnosis of Gallstone Disease," died at his home in Troy, N. Y., October 18, after an illness of several weeks, from heart disease, aged 51.

Mordecai Price, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, died suddenly at his home in Philadelphia from apoplexy, October 29, aged 60. Dr. Price was one of the most eminent abdominal surgeons and gynecologists of Philadelphia and an operator of national reputation. He was born in Rockingham County, Virginia, in 1844, and came to Philadelphia when a boy. He was associated in his work with his brother, Dr. Joseph Price. He was a member of the Philadelphia County Society, the Medical Society

of the State of Pennsylvania and the American Medical Association. He was a frequent contributor to medical literature.

Samuel W. Woodhouse, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, surgeon and naturalist on the boundary survey expedition between the Creek and Cherokee Indians; surgeon of the topographical engineer corps on the Sitgreaces-Zuni expedition in New Mexico, in 1852, and to Central America in 1853; surgeon at Fort Delaware in 1854; surgeon to the Washington Grays, and surgeon on Cope's packets, famous in the early days of steamships, died suddenly at his home, Philadelphia, October 23, aged 83.

Albion K. P. Meserve, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1859, a member of the American Medical Association; formerly president of the Maine Medical Association and chairman of the Portland Board of Health; secretary of the State Board of Registration in Medicine; member of the National Confederation of State Examining and Licensing Boards, died at his home in Portland, September 15.

Christopher C. Cook, M.D. St. Joseph (Mo.) Medical College, a member of the American Medical Association and the Greeley County Medical Society; for more than thirty years a practitioner of Nebraska, and since 1895 a resident of Scotia, died at the home of his daughter in Kansas City, Mo., September 30, from tuberculosis of the intestines, after an illness of eight months, aged 59.

Daniel A. Thompson, M.D. Medical College of Indiana, Indianapolis, 1883, a member of the American Medical Association; professor of diseases of the eye in Medical College of Indiana; one of the best-known specialists on the eye in Indiana, died at his home in Indianapolis, October 22, from malarial fever and abscess of the liver, after an illness of three weeks.

Montefiore Levi Maduro, M.D. College of Physicians and Surgeons in the City of New York, 1895, visiting physician at Mt. Sinai Hospital, member of the American Medical Association and of the New York State Medical Association, died at his home in New York City, October 23, from the effect of injuries received in a bicycle accident in 1898.

William Caldwell Flowers, M.D. Harvard University Medical School, Boston, 1861, for eleven years acting assistant surgeon in the Army, a member of the Massachusetts Medical Society and the Middlesex Medical Association, died at his home in Cambridge, Mass., October 20, after a lingering illness, aged 72.

Van Telburg Hofman, M.D. Medical College of Virginia, Richmond, 1897, a member of the American Medical Association, after a quarrel with his wife, committed suicide by shooting himself through the head, at his home in Sumter, S. C., October 24, aged 38.

Frederick A. Adams, M.D. Jefferson Medical College, Philadelphia, 1867, for 40 years a practitioner of Pocomoke City, Md., died at the University Hospital, Baltimore, October 28, from blood poisoning contracted during an operation, aged 65.

Jesse B. Blocher, Jr., M.D. University of Louisvile, 1902, of Blocher, Ind., coroner of Scott County, died suddenly from valvular heart disease, and his body was found in Smith's Ford of Fourteen-Mile Creek, October 23, aged 24.

Campbell Sheridan, M.D. Jefferson Medical College, Philadelphia, 1849, of Johnstown, Pa., the oldest member of the Cambria County Medical Society, died at his home in Sheridan Station, Pa., October 18, aged 85.

Joseph P. Cessna, M.D., 1859, surgeon of a Michigan regiment during the Civil War, who retired from practice in 1882, died at his home in Canfield, Ohio, October 9, from kidney disease, after a long illness, aged 79.

Henry Lott McIlhenny, M.D. Missouri Medical College, St. Louis, 1884, of Kingman, Kan., was instantly killed in a train wreck on the Missouri Pacific Railway while en route to St. Louis, October 10, aged 47.

William Pannill, M.D. Texas Medical College and Hospital, Galveston, 1878, formerly physician to the Texas State Orphans' Home, died at his home in Corsicana, Texas, October 21, after a long illness.

Jacob Eugene Mohr, M.D. Jefferson Medical College, Philadelphia, 1888, formerly of Quakerstown, Pa., died from hemorrhage caused by tuberculosis, at his home in Las Vegas, N. M., October 19, aged 39.

George C. Schemm, M.D. Jefferson Medical College, Philadelphia, 1887, of Saginaw, Mich., died at the Johns Hopkins Hospital, Baltimore, October 20, from anemia, after an illnes of two years, aged 41.

Alice P. Howes, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882, formerly of Detroit, died in the Eastern Michigan Asylum, October 11, after a long illness.

Frederick C. Hennessy, M.D. Bellevue Hospital Medical College, New York, 1897, died at his home in Madison, Ind., October 17, from heart disease after a long illness, aged 31.

James M. Jennings, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884, of Tyrone, Ky., died at St. Joseph's Infirmary, Louisville, from intestinal obstruction.

Lewis Royer, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1845, died from apoplexy at his home in Trappe, Pa., October 27, aged 82.

Stephen H. Brittain, M.D. Cincinnati College of Medicine and Surgery, 1859, died at his home in Loogootee, Ind., October 21, after a long period of invalidism, aged 72.

Henry C. Dixon, M.D. Louisville Medical College, 1872, of Tunnelton, Ind., died at Fort Ritner, Ind., October 15, from paralysis, after a long illness, aged 61.

Lewis J. Corey, M.D. Medical College of Ohio, Cincinnati, 1875, died at his home in Van Buren, Ind., October 25, after a short illness from apoplexy, aged 54.

Noah L. Eastman, M.D. Albany (N. Y.) Medical College, 1886, died at his home in Albany, N. Y., October 21, after a long illness, from Bright's disease, aged 46.

W. Bruce Collins, M.D. Vanderbilt University Medical Department, Nashville, 1893, died from paresis at his home near Oakfield, Tenn., October 9, aged 40.

J. Murray Wilcox, M.D. New York, 1893, of Barstow, Cal., died from pulmonary hemorrhage at his parents' home in St. Louis, October 19, aged 32.

William J. Moore, M.D. Illinois, 1902, died in Woodlawn, Birmingham, Ala., October 14, from typhoid fever after an illness of two weeks, aged 28.

Oliver Soper, M.D. New York, 1877, died at his home in Upper Montclair, N. J., October 22, from apoplexy, after an illness of a few hours, aged 61.

James S. Cabanne, M.D. Jefferson Medical College, Philadelphia, 1866, died in the City Hospital, St. Louis, October 19, from apoplexy, aged 71.

George A. Bentley, M.D. Georgetown University Medical Department, Washington, died at his home in Washington, October 21, aged 64.

J. Randolph Latimore, M.D. University of Maryland School of Medicine, 1881, died at his home in McAdensville, N. C., October 18.

Eleanor Louise Rundio, M.D. New York, 1902, died at her home in New York City, October 24, from typhoid fever aged 26.

Mary Alice Avery, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1879, of Portland, Maine, died recently.

Lydia A. Strowbridge, M.D. New York, 1861, died from cancer, at her home in Cortland, N. Y., October 4, aged 74.

Daniel J. Stowe, M.D. Illinois, 1878, died at his home in Belvidere, Ill., and was buried October 21, aged 73.

Miscellany.

The Portland Session.—The members of the profession of Portland are evidently appreciating their responsibilities regarding the sesssion of the American Medical Association next July, and realize fully that unless preparations are made Portland will be uncomfortably overcrowded during the week of the session. The *Medical Sentinel* for October says that while it has recognized from the first "the gigantic nature of the task which Portland has undertaken in entertaining the A. M. A. in 1905, and has constantly frankly stated and discussed all the difficulties which confront us, this has been solely for the purpose of emphasizing the fact that Portland was fully aware of the magnitude of the task, and of predicting confidently that her public spirit and enterprise would meet it and rise superior to it. One after another our prophecies have been justified, and each month sees another of the difficulties of the problem triumphantly solved. First was the securing of building or auditorium on the grounds of the ex-

position, but opening from the street outside. This has been secured and will seat at least 2,500 to 3,000 people, and negotiations are on foot for its arrangement so that it can be subdivided into meeting places for some of the sections. Other sections can be accommodated in other rooms about the grounds and in school buildings in the neighborhood, so that if desired it seems quite feasible to hold the entire session meetings on and about the grounds themselves. And now to solve another great crux in the problem comes the news that the same syndicate which constructed and managed the Inside Inn at the World's Fair at St. Louis has made application for similar concessions here to the Lewis and Clark Fair Board. And this was not the only string to Portland's bow, as it was, immediately on the announcement of this plan, given out by a body of her leading business men and capitalists, that they had looked over the situation thoroughly, and while they preferred to let the St. Louis syndicate erect the hotel if it would, yet if its terms did not meet with the approval of the fair board, they would themselves erect a similar structure with home capital. So that an Inside Inn, with at least a thousand rooms, and capacity for 1,500 guests, is absolutely assured. . . . From the comparative lateness in the summer of the date of the meeting a considerable majority of the wealthier citizens of Portland will have left for their vacations, so that a large number of elegant rooms and suites in private houses can be secured for those who desire them, and there need not be any fear on the part of those who intend to come to the American Medical Association next year but that there will be an abundance of comfortable accommodations, in the finest summer climate in the world."

State Boards of Registration.

COMING EXAMINATIONS.

Board of Registration in Medicine of Massachusetts, State House, Boston, November 8-9. Secretary, Edwin B. Harvey, M.D., Boston.

Nebraska State Board of Health, November 9-10, State House, Lincoln. Secretary, George H. Brash, M.D., Beatrice.

Connecticut State Board of Medical Examiners, November 8-9, City Hall, New Haven. Secretary, Charles A. Tuttle, M.D., New Haven.

Maine Board of Registration of Medicine, November 15, Augusta. Secretary, A. K. P. Meserve, M.D., Portland.

Progress in the Movement for Reciprocity in Licensure.—In 1902 the American Confederation of Reciprocating Examining and Licensing Medical Boards, representing fourteen states and since increased to seventeen, formulated the following declaration of purposes and qualifications as a desirable working basis of reciprocity:

PURPOSES OF THE CONFEDERATION.

The object of this confederation shall be to establish reciprocal relations between the medical examining and licensing boards of the states, territories, districts and provinces of the United States, the purpose of which being that thoroughly worthy and well-qualified physicians and surgeons, who have been legally authorized to practice under the laws of one of said states, territories, districts or provinces, may be given legal authority and be admitted to practice in any state, territory, district or province represented in this confederation, without a repetition of the tests and qualification to which such practitioner has submitted.

QUALIFICATION 1.

A certificate of registration showing that an examination has been made by the proper board of any state, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification; provided, that in case the scope of said examination was less than that prescribed by the state in which registration is sought, the applicants may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered.

QUALIFICATION 2.

A certificate of registration or license issued by the proper board of any state may be accepted as evidence of qualification for reciprocal registration in any other state; provided, that the holder of such certificate has been engaged in the reputable practice of medicine in such state at least one year; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the legal examination test in such state.

In proposing these qualifications the importance of practically uniform standards in the various reciprocating states was recognized, and steps were taken to secure them through the work of proper committees.

When these propositions came to be discussed in the boards represented in the confederation a natural fear soon developed that the charlatans of the country, who are probably little less dangerous to the public because able to pass an examination, and who are notoriously migrating characters, would systematically secure license in every state where it was made possible for them and, when exposed or convicted in one place, be prepared to move elsewhere and continue their nefarious practices.

As a seemingly effective safeguard against such abuse of the privilege of reciprocity by the unworthy, without hardship to those who have been in practice long enough to establish a professional character, at a meeting of the confederation held at St. Louis, Oct. 25, 1904, the committee on qualifications reported the following, and asked, on account of its great importance, that it lie over one year:

QUALIFICATION 3.

As evidence of moral and professional character after graduation and licensure, each applicant shall present, from his former home, to the state board in which registration is sought, satisfactory evidence that he has been, for at least one year, a member in good standing of the county, state and national medical organizations of the school or system of practice to which he belongs, and a certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of the benefits of registration anywhere, and such certificate shall be treated as a part of such application, and considered in connection with the other evidence presented.

In the discussion the report met with such favor as to indicate that it is only a question of time until the main features of the above three qualifications will form the basis for a real, practical and safe reciprocity between a majority of the states of the Union.

Schedule of Questions for Examination.—The following resolution was unanimously adopted by the Illinois State Board of Health Oct. 22, 1904:

RESOLVED, That all persons desiring to practice medicine and surgery in the State of Illinois shall, in addition to other requirements already imposed, be required to pass a written examination, consisting of one hundred questions, in the following subjects: Anatomy, including histology and embryology, 10 questions; general surgery, 10 questions; materia medica and therapeutics, 10 questions; medicine, 10 questions; obstetrics, 10 questions; pathology and bacteriology, 10 questions; chemistry, 5 questions; etiology and hygiene, 5 questions; physiology, 7 questions; neurology, 3 questions; gynecology, 6 questions; laryngology and rhinology, 2 questions; medical jurisprudence, 2 questions; physical diagnosis, 5 questions; ophthalmology and otology, 3 questions; pediatrics, 2 questions; and be it further

RESOLVED, That an average of at least 75 per cent. of correct answers shall be required from each candidate.

A similar schedule of questions for examination was unanimously adopted by the American Confederation of Reciprocating Examining and Licensing Medical Boards at its meeting in St. Louis October 25 on the recommendation of the committee appointed at a previous meeting to decide on uniformity as to scope and character of examinations by state medical boards.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers and of establishment and discontinuance of military posts, U. S. Army, for the week ending Oct. 29, 1904:

Tefft, W. H., asst.-surgeon, ordered to proceed from Fort Snelling, Minn., to Fort Lincoln, N. D., to accompany the Third Battalion Twenty-first Infantry, to Presidio of San Francisco.

Usher, P. H. C., asst.-surgeon, leave of absence extended fourteen days.

Williamson, L. P., asst.-surgeon, granted leave of absence for fifteen days.

Metcalfe, N. F., asst.-surgeon, reports his departure from U. S. General Hospital, Presidio of San Francisco, on leave of absence for one month.

Lyster, W. J. L., asst.-surgeon, leave of absence extended fifteen days.

Wadhams, G. H., asst.-surgeon, left transport *Logan* on one month's leave of absence.

Dewey, Frederick S., contract surgeon, granted leave of absence for fifteen days from Oklahoma City, Okla.

McCown, Thomas B., contract surgeon, granted sick leave for three months from the Philippine Division with permission to visit China and Japan.

Warwick, Clarence A., contract surgeon, granted leave of absence for two months from the Philippine Division, with permission to visit Cochin-China and Siam.

McMillan, Clemens W., contract surgeon, granted leave of ab-

sence for twenty days, to take effect after his arrival at Fort Myer, Va., to which he has been ordered from Fort Hamilton, N. Y.

Hayes, Melville A., contract surgeon, arrived at San Francisco, October 17, from the Philippines, for treatment at the General Hospital, San Francisco.

Navy Changes.

Changes in the Medical Corps, United States Navy, for the week ending Oct. 29, 1904:

Curtis, L. W., surgeon, ordered to the *Pensacola* and to additional duty at the Naval Training Station, San Francisco.

Asserson, F. A., P. A. surgeon, ordered to the Navy Yard, New York.

(Orders issued by the Commander-in-chief of Asiatic Fleet): Tolfee, H. M., asst.-surgeon, detached from the *Wilmington* and ordered home. Bachmann, R. A., asst.-surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the *Wilmington*.

Vickery, E. A., asst.-surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

Scott, S. L., asst.-surgeon, detached from the *Massachusetts* November 28 and ordered home; resignation accepted, to take effect December 1.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Oct. 26, 1904:

Brooks, S. D., surgeon, relieved from duty at Savannah, Ga.

McIntosh, W. P., surgeon, granted leave of absence for twenty-five days from November 8.

Smith, A. C., P. A. surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon.

Schereschewsky, J. W., asst. surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Wille, C. W., asst.-surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Wilson, R. L., asst.-surgeon, to proceed to New York City and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Trask, J. W., asst. surgeon, granted leave of absence for one month from October 22.

Hanrath, F. R., pharmacist, granted leave of absence for thirty days from September 26.

Gibson, F. L., pharmacist, granted leave of absence for thirty days from Dec. 2, 1904, and thirty days from Jan. 1, 1905.

RESIGNATION.

Mackall, R. McV., A. A. surgeon, resigned, to take effect Oct. 10, 1904.

CASUALTY.

Purviance, George, asst.-surgeon general, died, result of accident at Philadelphia, Oct. 20, 1904.

Health Report.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Oct. 29, 1904:

SMALLPOX—UNITED STATES.

Illinois: Chicago, Oct. 15-22, 30 cases, 2 deaths.
Michigan: At 42 places, Oct. 8-15, present.
Missouri: St. Louis, Oct. 15-22, 30 cases, 6 deaths.
Ohio: Cincinnati, Oct. 7-21, 3 cases.
Pennsylvania: Oct. 15-22, Philadelphia, 1 death; Steelton, 1 case.
South Carolina: Greenville, Sept. 25-Oct. 1, 3 cases.
Wisconsin: Milwaukee, Oct. 8-22, 12 cases.

SMALLPOX—FOREIGN.

Brazil: Pernambuco, Sept. 1-15, 25 deaths; Rio de Janeiro, Sept. 18-Oct. 2, 655 cases, 247 deaths.
China: Shanghai, Sept. 3-10, 1 death.
France: Paris, Oct. 1-8, 8 cases.
Great Britain: Oct. 1-8, Edinburgh, 1 case; London, 1 case; Newcastle-on-Tyne, 8 cases; Nottingham, 1 case; South Shields, Sept. 18-24, 1 case.
India: Bombay, Sept. 20-27, 2 deaths.
Italy: Catania, Sept. 28-Oct. 6, 1 death; Palermo, Sept. 25-Oct. 8, 14 cases, 5 deaths.
Malta: Sept. 25-Oct. 1, 1 case.
Russia: Moscow, Sept. 25-Oct. 1, 7 cases, 2 deaths.
Spain: Barcelona, Oct. 1-10, 7 deaths.

YELLOW FEVER.

Costa Rica: Limon, Oct. 8-15, 1 case imported from Sequires.
Cuba: Santiago, Oct. 24, 1 case imported from Puntasal.
Mexico: Oct. 8-15, Coatzacoalcos, 3 cases, 2 deaths; Merida, 1 case, 1 death; Tehuantepec, Oct. 2-15, 4 cases, 2 deaths.

CHOLERA.

India: Bombay, Sept. 20-27, 9 deaths; Calcutta, Sept. 17-24, 2 deaths.
Turkey: Bagdad and vicinity, Aug. 20-Sept. 3, 585 cases, 405 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, Sept. 3-10, 1 case, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony, Sept. 10-17, 3 cases; Johannesburg, March 26-July 9, 156 cases, 95 deaths.
Brazil: Rio de Janeiro, Sept. 18-Oct. 2, 56 cases, 24 deaths.
China: Hongkong, Aug. 27-Sept. 10, 6 cases, 6 deaths.
India: Bombay, Sept. 20-27, 11 cases, 85 deaths; Calcutta, Sept. 17-24, 3 deaths; Karachi, Sept. 18-25, 11 cases, 7 deaths.
Japan: Formosa, Aug. 1-31, 34 cases, 38 deaths.
Straits Settlements: Singapore, Oct. 2, present.

Medical Organization.

Good Work in Oklahoma.—From the announcement of the next meeting of the Oklahoma State Medical Association, which takes place in Oklahoma City next Tuesday and Wednesday, we clip the following: "At the last meeting of the association it was unanimously decided to reorganize the association so as to have it conform to the plans of the American Medical Association. Accordingly the 'Constitution and By-Laws prepared for State Associations' were adopted, and the territory divided into five councilor districts. The fact that every county in the territory, with the exception of Beaver, where it seemed impractical to organize a county society, has been organized, shows that the councilors have done their work well. The house of delegates and councilors will meet on the evening of November 8 to grant charters to county societies and to transact such other business as may come before them."

Society Proceedings.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, held in Cincinnati, Oct. 11-13, 1904.

(*Continued from page 1327.*)

Intestinal Surgery, with Remarks on Technic.

DR. JOHN YOUNG BROWN, St. Louis, said that there is a class of abdominal cases which may justly be considered acute, because the indications for immediate surgery are mandatory, and in which the mortality largely depends on the time of operation and the technic of the work. He discussed, first, penetrating gunshot and stab wounds of the abdomen; second, severe abdominal contusions associated with rupture of the intestines or other visceral injuries; third, strangulated hernia.

Gastroenterostomy.

DR. WILLIAM H. WATHEN, Louisville, described the pathologic conditions indicating the necessity for stomach drainage. He said that pyloric divulsion has proven unsatisfactory, seldom gives permanent results, and sometimes commits a traumatism that increases the trouble. Pyloroplasty and its modifications have given better results, but the operation is seldom indicated and is practically obsolete. Gastroduodenostomy is theoretically ideal, and in properly selected cases gives excellent results, but it is often impractical because of adhesions or tumors, while gastroenterostomy may be performed as easily, as quickly, and with a mortality as low, and is applicable in nearly all cases. Roux' method of cutting the intestine across, implanting the distal end into the stomach, and the proximal end into the side of the distal end is theoretically ideal, and avoids regurgitant vomiting, but it is difficult and prolonged, and if universally accepted would have a mortality that would be prohibitory. Gastroenterostomy by the surface-to-surface anastomosis of the stomach and jejunum is applicable to the greatest number of cases, and may be performed in nearly any condition requiring stomach drainage. Anterior gastroenterostomy as an operation of election must soon become obsolete, and will finally be accepted only where an operation is necessary to give tempoarary relief, or where the posterior operation is contraindicated. The ideal operation of election must eliminate the intestinal loop, and this may be done by the posterior method, by attaching the jejunum very near its origin under the transverse mesocolon; the bowel incision may then be made longitudinally or transversely, but is usually made in a longitudinal direction. This method is preferable if the opening into the bowel can be made large enough to permit of continued unimpeded drainage. Posterior gastroenterostomy is now an accepted method with no higher mortality than the anterior method, with nearly an absence of regurgitant vomiting and other immediate complications, and with ultimate excellent results in drainage, the gastrojejunic opening seldom contracting enough to induce pathologic condition. The McGraw ligature in the anterior method gives good immediate results, but we can not judge correctly of the ultimate results in the patency of the gastrojejunic

opening, and the ligature has probably not been tested in the posterior method.

The Indications and Limitations of Various Operations on the Gall Bladder.

Dr. Charles A. L. Reed, Cincinnati, reviewed the various operations for the relief of surgical conditions of the gall tract, summarizing them under the heads of cholecystotomy, cholecystectomy, cholecystenterostomy and choledochotomy. He said that cholecystotomy ought not to be done in cases in which prolonged drainage is required, or in which there is a demonstrable permanent obstruction in the common duct, or in which such obstruction might develop. He insisted that the gall bladder be not removed without adequate cause, such as conditions of atrophy and malignant degeneration of the gall bladder and cases in which benign neoplasms cause practical obstruction of that viscus. He said that cholecystenterostomy should be the operation of choice in all cases in which the gall bladder and a desirable segment of the intestinal tract, preferably the duodenum, the ileum or the jejunum, in the order mentioned, should be approximated, and in which drainage is demanded for accumulations within the gall bladder of whatever character; for occlusion of the common duct or following operations on it; for cholecystitis in which the gall bladder can be safely left *in situ*, and in all chronic fistulæ of the gall bladder.

Ectopic Pregnancy.

Dr. F. F. Lawrence, Columbus, Ohio, said that in ectopic pregnancy the death rate should be lower than in appendicitis, providing the surgeon got the cases before rupture. The diagnosis of tubal pregnancy before rupture should be made with as much or greater certainty than could a normal pragnancy before the third month. The fact that a tubal pregnancy is allowed to go on to rupture is a reproach to obstetric practice. In unruptured cases the tube can be more safely removed through abdominal incision. In ruptured cases it is often unwise to attempt to remove a patient to a hospital. The chances of infection in her home can be more readily overcome than the danger of increasing hemorrhage by handling. In all cases of extrauterine pregnancy, tubal disease, which is bilateral, seems well established. The danger of a catastrophe in case the unaffected tube is left is, therefore, great, unless that tube be safely obliterated. Absorbable ligature is not a safe material to use for obliteration. Silk of large size only should be used. The better practice is to remove both tubes, retaining the ovary, if possible.

The Transverse Fascial Incision for Operations in the Pelvis.

Dr. Emil Ries, Chicago, said that in order to gain reliable fascial protection for incisions for pelvic work it is desirable not to incise the fascia in the median line.

Suppuration of Nasal Accessory Sinuses.

Dr. J. A. Stucky, Lexington, Ky., pointed out the importance of early recognition of suppuration of nasal accessory sinuses. Frequent peculiar anatomic inter-relationship of the different sinuses renders the symptoms obscure and misleading. Suppurative products may exist in latent form and eventually result in systemic infection. The sequelæ of chronic suppuration of any accessory sinuses are frequently due to some form of neurasthenia, migraine, la grippe, pneumonia, and strenuous indoor life. The treatment is the same as for pus formation in any other part of the body. The middle turbinate most frequently causes obstruction of natural openings or a hindrance to free drainage, and he advocated its early removal.

Strictures of the Urethra.

Dr. A. Ravogli, Cincinnati, said that the symptoms of urethral strictures are mostly local, but at times may be general and neurasthenic. Strictures are somewhat diminishing in their frequency, and this must be credited to the recent method of treatment of gonorrhea. A great deal of benefit may be expected from systematic dilatation and from remedial applications, but in very serious cases external urethrotomy is imperative.

The Perilous Calms of Appendicitis.

Dr. Robert Wallace Hardon, Chicago, presented these conclusions: "1. Defervescence of symptoms and apparent better condition of the patient do not always mean recovery, but may precede a dangerous condition. 2. As there is no specific for the disease, no matter what treatment is used, the one who procrastinates should shoulder the responsibility for the death. 3. When a clear diagnosis is made only one treatment should be advised, operation as soon as possible, or the opportunity may be gone. 4. The physician who does not explain the great dangers of delay and the small comparative danger of operation, is doing his patient a serious injustice which often leads to fatal results. 5. Operation at the proper time usually greatly shortens convalescence, and eliminates all danger from this cause thereafter. 6. Procrastination is the greatest cause of surgical death, operation often being performed as a last resort when little hope of recovery exists."

(To be continued.)

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-first Annual Meeting, held in New York City, Oct. 17 to 20, 1904.

(Concluded from page 1329.)

Conservatism Versus Early Intervention in Simple Dystocia.

Dr. William J. Meyer, White Plains, believed that there is too much conservatism in uterine inertia, or cervical rigidity, and that the condition may exist for days because a physician does not use forceps. During the past five years he has used forceps in 186 cases of simple dystocia, and has had neither laceration of the perineum nor postpartum hemorrhage. He is convinced of the wisdom of manual dilatation in rigidity of the os, and never permitted patients to remain in labor longer than seven hours without interference.

DISCUSSION.

Dr. Everard D. Ferguson, Troy, strongly objected to mechanical metal dilators. With proper cleanliness the risks of manual interference are reduced to a minimum. He never uses any instrument but his hand in placenta previa or other conditions requiring interference.

Dr. Bernard Cohen, Buffalo, approves of manual dilatation of the rigid cervix; one of the advantages being that it gives information as to why the condition exists. He recommends morphin and quinin as an oxytoxic. He emphasized the importance of proper judgment as to the right time to apply forceps. He has found that in 2,500 cases he has torn one out of every seven perineums, and one out of every five cervices.

Dr. Joseph B. Cooke, New York, invariably uses his fingers to dilate the cervix until it is completely dilated or paralyzed. His patients are always thoroughly anesthetized before the application of forceps, which should not be removed, but allowed to fall off after the expulsion of the head.

Dr. Benjamin W. Stearns, Binghamton, recommended the administration of six grains of chloral hydrate, one-half a dram of viburnum compound, and two grains of quinin every twenty minutes to relax a rigid cervix. Chloral does not interfere with the use of chloroform later.

Asthma and Its Relation to Environment.

Dr. George N. Jack, Buffalo, said that the asthmatic is a human thermometer and barometer; some environments will explode this pathologically charged machine into an asthmatic manifestation, while others will retard the explosion or quell it. To one or the other of these classes belong every factor, climatic, thermic, actinic, motion and quiet, dust and fumes, and the asthmatic hourly responds to each.

An Old Specialty.

Dr. Jane Lincoln Greeley, Jamestown, said that others may render more conspicuous service, but the family physician stands nearest the daily life of the people. His work begins

with the beginning of the family. He looks to the sanitary condition of the house and the vicinity. He should be a public-spirited man, for the interests of the family are the interests of the community. He should have a good general education and should be interested in educational problems, in labor and in diversions. His work calls for a study of human nature, but the absolute requirement is character.

An Atypical Case of Appendicitis Presenting Some Unusual Features Found at Operation.

DR. W. B. REID, Rome, reported this case. The patient was 49 years of age, and was first seen after being thrown from a sleigh. Pulse, 110; temperature, 101; respiration, 24. There was tenderness over McBurney's point and general tympanitis. The bowels had not moved for three days, and the urine showed pus cells and granular and hyaline casts. The diagnosis was traumatic appendicitis. Operation three weeks later revealed a case of appendicitis of long standing, the traumatism being a coincidence; the acute attack was followed by the invasion of the colon bacillus and abscess formation. The acute nephritis was caused by an infectious toxemia, as postoperative examination of the urine showed that the associated diabetic condition furnished a sufficient amount of sugar in the abscess cavity for the production of gas formation. The question suggested was whether this was a double infection by the *Bacillus coli communis* and the *Bacillus lactis acrogenes* or the infection by the coli communis alone which had produced what is ordinarily called "involution forms" resulting in gas formation.

Nephroptosis; Its Gynecologic Importance.

DR. AUGUSTINE H. GOELET, New York, said that the prolapse of the kidney is very often overlooked as a factor in producing and maintaining congestion of the pelvic organs. The kidney, when prolapsed, overlaps and compresses the ovarian vein, thus obstructing the return circulation from the pelvis when the waist is constricted even sufficiently to support the clothing. The intestinal distention is an important factor in forcing the kidney back against the spine. The colon, being attached to the kidney, when distended drags on it and holds it in position at the waist line, thus, as there is no room for the bowel above the waist line, it becomes displaced below. Compression and obstruction of the ovarian vein may also be caused by the vein being in front and the ureter behind the kidney where they cross, when the kidney descends the ureter becomes bent on and drags on the vein. Distention of the ureter will also cause pressure on this vein. Prolapse of the kidney may cause or maintain such conditions as leucorrhea, endometritis, uterine displacements, ovaritis, salpingitis, hemorrhages into the pelvis, and even cystitis. Examination of patients who have consulted him for this condition showed that 75 per cent. suffered from existing inflammation of the pelvis or urinary tubules. In 197 consecutive nephropexies, in 47 of which both kidneys were fixed, he has had no mortality, consequently the operation can not be considered a serious one.

Transillumination of the Stomach as an Aid to Diagnosis.

DR. ROBERT COLEMAN KEMP, New York, said that transillumination is an aid in investigating mucus colic and has enabled him to demonstrate gastroptosis as a factor in this condition, which is due to abnormal positions, and not to inflammations. Transillumination is an aid in differentiating dilatation of the stomach and gastroptosis, and also in indicating the degree of dilatation and the prognosis. It is of value in exploration of the anterior wall and the greater curvature of the stomach, of tumors and of thickenings and in explorations at or beneath the costal arch. It can be used in differentiating carcinoma or other tumors in various parts of the gastrointestinal tract. Gall-bladder diseases can be differentiated from diseases of the stomach, and it is also of value in determining the position of adhesions.

A Substitute for Rubber Gloves in Surgery.

DR. FREDERICK H. WIGGIN, New York, said that the following substitute for rubber gloves has given him the greatest satisfaction: 49½ ounces alcohol (96 per cent.), 49½ ounces of ether, ½ ounce of celloidin and 1 ounce of castor oil. The operator dips his hands in this solution after having sterilized them. This gives a coating which does not crack and is not soluble in water or ordinary alcohol, and which equal parts of alcohol and ether will remove.

Salivary Calculi.

DR. HERMAN JARECKY, New York, reported three cases, in two of which the calculi were situated in the submaxillary ducts, while in the other case one calculus was in Wharton's duct and one in Blandin's gland. The point of interest is that two calculi could occur in two different glands. He has been able to find but two such cases in literature.

DISCUSSION.

DR. WOLFF FREUDENTHAL, New York, does not think that these calculi are rare, and said that it is remarkable how many people can stand the presence of large calculi without noticing them.

DR. G. LENOX CURTIS, New York, said that he has operated on at least twenty similar cases and does not consider the condition rare.

Radical Operation for Carcinoma of the Breast.

DR. WILLY MEYER, New York, said that in his ten years' experience with his operation he has only once had to give intravenous injections during the operation. Eighty patients have been operated on and only two of these have died from conditions connected with the operation. One of these was diabetic and the other had a recurrence of the carcinoma. The total removal of the pectoralis major does not interfere with the free movement of the arm. His statistics are as yet incomplete, owing to the difficulty of keeping track of patients in a large city.

Prolonged Fasting in Treatment of Acute Alimentary Diseases.

DR. NORTON JEROME SANDS, Port Chester, said that in acute diseases in general especially of the alimentary canal, food should be withheld, as the assimilative powers are impaired. Food should not be administered until the temperature is normal, the bowels regular and the tongue clean. It is possible to fast three or four weeks without pronounced weakness.

DISCUSSION.

DR. FREDERICK H. WIGGIN, New York, said that he relies on castor oil and glycerin by the mouth in surgical sepsis, and saline solutions by the bowels, two or three quarts daily until the temperature recedes.

The Suppression of the Acetone Bodies in Diabetics.

DR. HEINRICH STERN, New York, said that in diabetes the acetone substances always indicate a state of undernutrition. He does not consider that oatmeal is any better tolerated by diabetics exhibiting acetonuria than other amyloid substances. If we wish to successfully combat acidosis without aggravating the diabetic condition, we can neither add carbohydrates to the diet for any lenth of time, nor can we augment the amount of proteid ingesta. The only fatty article of food which he has found useful in the diabetic during acidosis is yolk of egg. Raw or semi-raw eggs may be consumed in almost any quantity. The yolk cure is based on four factors: 1. Palmatin, stearin and olein, the fatty substances of the yolk, yield little or no butyric acid. 2. The large amount of lecithin restores the nerve force and ameliorates the wasting condition. 3. The diastatic ferment in the yolk aids in starch conversion. 4. The yolks exert a stimulating action on the gastric secretion. This treatment consists in the consumption of from ten to forty yolks daily, with a small amount of proteids and some carbohydrates.

Twenty-five Cases of Pernicious Anemia.

DR. A. E. WOEHNERT, Buffalo, reported cases in which blood drawn from the finger was less viscid and dark than normal, and when much impoverished looked more like water. A marked feature was that the red cells were increased in di-

ameter. The erythrocytes varied from 628,000 to 2,440,000 to the c.m. The leucocytes varied from 2,400 to 12,344. A differential count of the white cells showed, on the average, polynuclears 61 per cent., lymphocytes 33 per cent., large mononuclears 4 per cent., and eosinophiles 2 per cent. Specific gravity in 11 cases was from 1,037 to 1,051. Hemoglobin ranged from 23 per cent. to 65 per cent. The hemoglobin index was high, being about 122 per cent. Macrocytosis was the rule. Many of the cells had lost their concavity, and in some the nucleus took a light stain and was separated from the rest of the cell by a zone.

DISCUSSION.

DR. J. J. WALSH, New York, said that pernicious anemia is much more frequent than was formerly supposed. Antistreptococcic serum in pernicious anemia has been disappointing.

DR. W. B. STEARNS, Binghamton, thought that as in malignant growths the malignant cells take the place of normal cells, so in pernicious anemia the abnormal cells may take the place of the normal.

Some Occupations and So-Called Rheumatic Pains.

DR. JAMES J. WALSH, New York, stated that patients frequently complain of pains which they believe to be rheumatic. In recent years there has been a decided reaction in regard to the so-called uric acid diathesis, and at present very few scientific men consider uric acid of etiologic importance, except, perhaps, in gout. Such pains seem caused by overworking certain muscles in various occupations, as in a motorman, who was troubled with pains in the shoulders. In such cases a neuritis had probably been set up for which no satisfactory reason can be given.

DISCUSSION.

DR. WILLIAM W. BEMIS, Jamestown, has found that proper support to the instep has relieved many cases of cramps in the feet and legs. He had seen cases of general neurasthenia due to pains in the back, which were probably due to some pressure on the nerve low down. This condition can be relieved by supporting the upper part of the body.

The Alexander Operation; Its Results Immediate and Remote.

DR. JAMES E. KING, Buffalo, said that successful results are only possible when the indications have been carefully considered. The only indication is simple uncomplicated retroversion. Where relapses occurred they are due to suppuration or small ligaments. Great care should be taken in handling the ilio-inguinal nerve. In two cases that he reported the symptoms were due to a relaxing of the uterosacral ligament and prompt relief was afforded by operation. The operation has no influence on pregnancy or labor.

DISCUSSION.

DR. HENRY O. MARCY, Boston, has now ceased to do the operation. It has a limited field, but far less than formerly was thought.

DR. J. RIDDLE GOFFE, New York, has discontinued doing the operation, and has found that 80 per cent. of cases of retroversion are complicated by disease of the uterus or appendages and this limits the field to 20 per cent. The round ligaments are not designed to support the uterus, but, during gestation, to keep the fundus against the anterior abdominal wall. The uterosacral ligaments are the proper supports of the uterus and in procidentia shortening these ligaments has given satisfactory results.

Scarlet Fever with Reference to the Heart and Other Complications.

DR. LOUIS FISCHER, New York, said that in this disease more attention should be paid to the heart and less to the temperature. A moderate rise in temperature often occurs in the most malignant forms of the disease, and, on the other hand, the mildest forms of scarlet fever begin sometimes with a very high temperature; therefore, one can not say that a very high fever is any guide to the severity of the case. Fever does not invariably indicate disease, and the temperature curve is given far more credit during convalescence than it deserves. A drop of several degrees does not indicate improvement in all cases. The greatest attention should be bestowed on the condition of the heart. The pulse, its character, frequency and tension are the most important guides in determining a favorable or unfavorable termination. High mortality is largely due to the fact that the children are not kept in bed long enough; every case of scarlet fever should be kept in bed at least four weeks. The diet should be liquid, and the emunctories should be stimulated. A hot saline, colon flushing, one or two quarts, at a temperature of from 115 to 120 degrees F. should be given once a day after the first week, regardless of the necessity of the same; it stimulates diuresis, cleanses the bowel and nourishes the blood.

Other papers read and discussed were as follows: "Iodin in the Treatment of Postoperative Sepsis," by Dr. James H. Burtenshaw, New York; "The Result of 1,400 Operations for the Radical Cure of Hernia in Children," by Drs. William T. Bull and William B. Coley, New York; "The Brief Story of a Smallpox Epidemic," by Dr. Edward Munson, Medina; "Ocular Reflexes and Their Influences on General Health," by Dr. S. W. S. Toms, Nyack; "Infant Mortality in New York City," by Dr. Louis Curtis Ager, Brooklyn; and "Prostatectomy in Emergency Cases," by Dr. John F. Erdmann, New York.

VERMONT STATE MEDICAL SOCIETY.

Ninety-first Annual Meeting, held at Rutland, Oct. 13 and 14, 1904.

The president, Dr. William N. Bryant, Ludlow, in the chair.

DR. PATRICK M. MCSWEENY, Burlington, the vice-president, made an earnest appeal for early operation in all cases of ectopic gestation.

DR. DONLY C. HAWLEY, Burlington, demanded pure milk and fresh air for children as being more important factors than medicine.

Surgery of the Stomach.

DR. JOHN C. MUNRO, Boston, a guest of the society, detailed in his address the great advancement that had been made in the last two years in surgery of the stomach, and the rapid decrease in mortality following operations on that viscus.

Prevention of Ear Infection.

DR. FRANCIS P. EMERSON, Boston, also a guest of the society, in a paper entitled "What Can Preventive Medicine Do to Safeguard the Middle Ear Against Acute and Chronic Infection," clearly demonstrated that in order to prevent infection of the ear it was necessary properly to treat all diseases and malformations of the nasal passages and pharynx.

President's Address.

DR. WILLIAM N. BRYANT, Ludlow, selected for his theme, "Epidemic Influenza in the Etiology of Certain Diseases," and by means of charts and statistics showed most clearly that influenza has a marked effect in the production of other disorders.

Mercury in Typhoid.

DR. J. MORRIS HACKETT., Champlain, N. Y., read a paper on "The Specific Treatment of Typhoid," which evoked considerable discussion, as the author alleged that, after fifteen years' experience, he had clearly demonstrated that mercury in the form of blue mass and calomel is a specific in typhoid fever.

Election of Officers.

The report of the house of delegates, read by the clerk, Dr. Lyman Allen, Burlington, named the following officers, committees and delegates, all of whom were declared elected: President, Dr. Patrick E. McSweeny, Burlington; vice-president, Dr. Myron L. Chandler, Barre; secretary, Dr. George H. Gorham, Bellows Falls; treasurer, Dr. Bingham H. Stone, Burlington; auditor, Dr. John H. Blodgett, Saxtons River. Executive committee, the president, secretary and Dr. Donly C. Hawley, Burlington. Publication committee, Drs. George H. Gorham, Bellows Falls; George R. Anderson, Brattleboro; Edward R. Campbell, Bellows Falls. Necrology committee, Drs. Merritt H. Eddy, Middlebury; Columbus S. Seofield, Richford, and C. W. Howard, Shoreham. Legislation com-

mittee, Drs. Summer E. Darling, Hardwick; Henry D. Holton, Brattleboro, and Edward R. Campbell, Bellows Falls. License censors, Drs. Henry James, Waterbury; Schuyler W. Hammond, Rutland, and J. Sutcliffe Hill, Bellows Falls. Anniversary chairman, Dr. Charles W. Peck, Brandon. Delegates—To American Medical Association, Dr. Henry D. Holton, Brattleboro; to Massachusetts Medical Society, Drs. John H. Blodgett, Saxtons River, and Frederick R. Stoddard, Shelbourne; to Dartmouth Medical Society, Drs. Lester W. Burbank, Cabot, and Orville C. Baker, Brandon; to University of Vermont, Drs. Michael F. McGuire, Montpelier, and Clayton W. Bartlett, North Bennington; to Maine Medical Society, Drs. Edwin M. Nichols, Barton, and Frederick S. Gray, Troy; to Rhode Island Medical Society, Drs. Ansel I. Miller, Brattleboro, and William W. Townsend, Rutland; to New Hampshire Medical Society, Drs. Alanson C. Bailey, Randolph, and Frederick C. Liddle, Dorset; to Connecticut Medical Society, Drs. Fred T. Kidder, Woodstock, and John W. Estabrooke, Brandon; to New York Medical Society, Drs. Edward D. Ellis, Poultney, and C. Lyman Hodgkins, Castleton, and to White River Junction Medical Association, Drs. Frederick L. Osgood, Saxtons River, and A. Lawrence Miner, Bellows Falls.

The society adjourned to meet in Burlington in 1905.

Travel Notes.

XV.

MEDICAL EDUCATION IN AUSTRALIA.

NICHOLAS SENN, M.D.
CHICAGO.

COLOMBO, CEYLON, Aug. 25, 1904.

The number and character of the educational institutions of a country furnish the most reliable gauge with which to estimate the degree of intelligence of its people and the virtues of its government. Measured by this scale young Australia compares well with America and the countries of the old world. New countries, like new cities, have the great advantage of profiting by the experience of the past, placing them in a position to select what has been found most useful and practical and to eliminate what has been proved objectionable by the test of experience. The educational institutions of the old world and some of our own have been undergoing constant changes in the construction of buildings and methods of teaching, in order to keep pace with the rapid strides of progress and spirit of investigation and original research which characterize the present age. Scrutinized in the light of the beginning of the twentieth century, many of the famous, venerable, moss-covered universities of the old as well as of the new world appear like a patched garment when contrasted with the new, vigorous institutions of learning founded, organized and managed in accordance with the most recent requirements. Viewed from an educational standpoint, Australia has reason to take pride in what she has accomplished. The government of this country has been liberal in responding to the educational needs of its slowly growing and now almost stationary population. Its public schools are within easy reach of every child, not only in its cities and villages, but wherever a small settlement is found in the mountain forests and arid plains. It has its grammar and high schools, colleges and universities, which meet all the necessities of a higher and professional education. It is a great mistake for any young Australian man or woman to leave their native soil in search of better opportunities to qualify themselves for any position in life, as the choicest and best lies at their very door. An Oxford or Cambridge degree will be of no more use to a professional man or woman in Australia or anywhere else than a degree from any of the three universities of the island continent, as the requirements for graduation of the latter are equally, if not more, stringent than of the former. This southwestern part of the world is fully aware of what is going on in the way of scientific progress and has already to some extent contributed its share to the common fund of knowledge, and is now in a position to become a more liberal contributor. We as physicians are more especially interested in the advantages offered by the Australian universities for its medical students. It is in this branch of university education that the greatest changes in the methods of teaching have been witnessed during the last quarter of a century. In writing this communication I have made liberal use of two addresses delivered by Prof. T. P. A. Stuart, the distinguished physiologist of the Sydney University ("A Review of University Life in Australia, Etc.," and "The Majority of the Medical School," the latter on the occasion of the University of Sydney celebrations), and the last calendars of the three universities. The three Australian universities are located at Sydney, Melbourne and Adelaide, and were founded in the order in which these names appear. Each university has its own medical department. Fortunately for the new country and its medical profession, private medical schools are out of the question. The requirements for entrance and graduation are about the same in all of the three schools and I quote here from the last catalogue of the University of Adelaide:

"No person shall be permitted to commence the medical course until he shall have completed his sixteenth year and have produced evidence of the fact to the satisfaction of the council. Before entering on the medical course the intending student must satisfy the examiners at the senior public examinations in the following subjects: 1, English literature and English history and geography; 2, Latin; 3, arithmetic and algebra; 4, geometry; 5, one of the following—a, Greek; b, French; c, German."

The medical course is five years. The examinations are held annually in November and supplementary examinations may be held, should occasion arise, in March. The students are not pestered with so many examinations as in some of our medical colleges and their time is spent in steady, uninterrupted work instead of one-fourth of it being spent in cramming for the frequent examinations, as is the case with some of our schools.

The first examination includes: 1, Elementary anatomy and dissection; 2, elementary biology, theoretical and practical; 3, inorganic chemistry, theoretical and practical; 4, elements of physics.

The second includes: 1, Anatomy, general and descriptive, with dissections; 2, physiology, including practical physiology, histology and physiologic chemistry; 3, organic chemistry, theoretical and practical, with special reference to physiology and medicine; the chemistry of poisons, organic and inorganic, with special reference to their detection.

The third includes: 1, Principles and practice of medicine; 2, principles and practice of surgery; 3, regional and surgical anatomy; 4, materia medica.

The fourth includes: 1, Principles and practice of medicine, including clinical medicine; 2, principles and practice of surgery, including surgical anatomy and clinical surgery; 3, obstetrics; 4, forensic medicine, including insanity; 5, pathology.

The fifth and last includes: 1, Medicine, all branches; 2, surgery, all branches, including anatomy and operative surgery; 3, gynecology; 4, ophthalmology; 5, otology; 6, elements of hygiene; 7, therapeutics.

It seems to me that the order of subjects in these examinations is excellent, leading the students from the elementary branches up a gradual incline to the most complicated practical subjects. Anatomy is taught in England better and more thoroughly than in any other country. The English surgeon is invariably a good anatomist. The Australian schools, conducted as they are largely by men who obtained their education in the United Kingdom, place the same stress on this the most important of all the primary branches, and when their students graduate they know their anatomy. No time is spent in making skeletons of clay. Gray's Anatomy and Heath's Dissector are their text-books and the cadaver their object lesson. Professor Watson of the Adelaide University has little confidence in lectures as a means of teaching anatomy and spends most of his time in the dissecting room with his students, supervising, demonstrating and directing their work

Some of the dissections I examined were sufficient proof of the students' interest and diligence in acquiring their knowledge of anatomy and the efficiency of the methods of teaching employed.

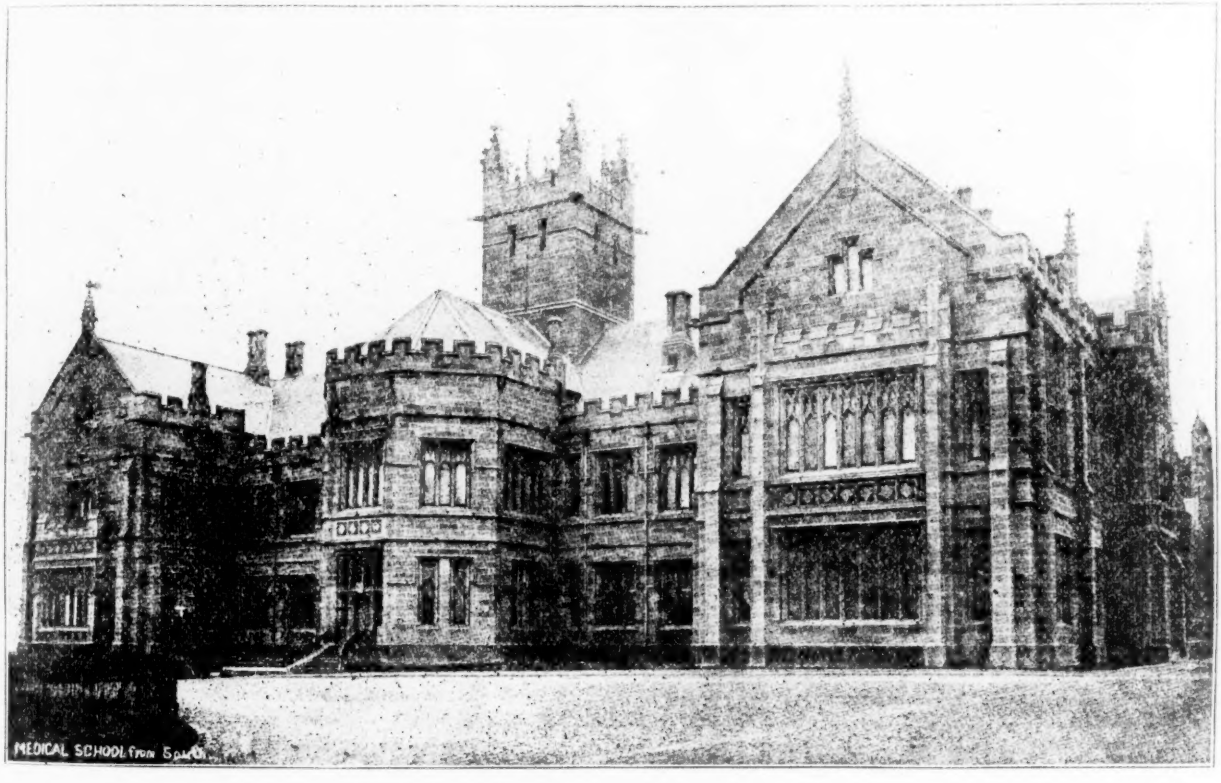
The only fault I could find with the methods of teaching employed in the Australian medical schools is that too much weight is still given to didactic lectures and too little attention is paid to recitation courses. There are, however, indications that gradual changes will soon reverse this order of things. The attendance at the medical schools is necessarily small; the teaching force, on the other hand, in each school is large, conditions most favorable for systematic, theoretic teaching by the use of reliable text-books, recitations, remarks and demonstrations. Each of the three medical schools has the practical control over a hospital of 200 and more beds, where the main clinical teaching is done. In Sydney it is the Royal Prince Albert Hospital; in Melbourne, the Melbourne Hospital, and in Adelaide, the Adelaide hospitals. In all of these cities the students have also access to a children's and other hospitals, the former always directly or indirectly connected with the medical school, the latter being available for extra mural clinical teaching. Not much weight is placed, however, on the importance or value of extra mural teaching in any of the schools. On the other hand, the greatest attention is given to laboratory work, and all of the schools have excellent laboratories with all modern equipments and appliances. No other medical schools in the world can offer better inducements for their graduates to obtain an interneship in a hospital than those of Australia. Thus, of the 218 graduates of the Sydney University no less than 184 held office as resident medical officers in some hospital, and growing hospital facilities will only increase the number of internes in the future. The fees for the whole course of five years, including fees charged for examination, is about $575.

The universities confer three medical degrees—Bachelor of Medicine, Bachelor of Surgery and Doctor of Medicine. To obtain the last degree a Bachelor of Medicine or Surgery makes application one or two years after graduation, writes a thesis or passes another examination and, if satisfactory, receives the degree of M.D. As this degree is more honorary than useful and the obtaining of it involves another and not inconsiderable expense, most of the practitioners enter on their life work without applying for it. Many physicians and surgeons prefer the plain title of Mr. to Doctor. All the professors receive a salary of from $800 to $4,500 a year; in one or two of the universities they receive a pension of $2,000 a year on retirement after twenty years' service.

SYDNEY UNIVERSITY AND MEDICAL SCHOOL.

The Sydney University commenced its first matriculation on Oct. 4, 1857. Its courses of lectures were at first restricted to those required for the Arts degree; the medical school and the school of engineering were opened in 1883, and the law school was opened in 1890. The teaching staff of the university has gradualy increased from three professors and two lecturers in 1854 to 14 professors and 34 lecturers in 1899, having under their care 519 students. The university owes a great deal to private benefactions. The total sum from this source at the close of 1899 was over $2,000,000.

The university building is a magnificent solid stone structure in Gothic style, occupying the summit of a high hill and surrounded by 132 acres of land. The Prince Alfred Hospital is located on the same grounds. A large, fine brick building for the library is now in process of construction. The present chancellor of the university is Sir Normand MacLaurin, a distinguished Sydney practitioner of medicine. I will always remember with pleasure and gratitude the hours I spent with the chancellor in visiting the university, inspecting its great hall, library, rich museum and the medical school. Sir Normand has shown great tact and executive ability in the management of this young but vigorous institution, but has not lost his interest in medicine and he takes a just pride in the medical school on which he showers his fostering care. The university has now an attendance of about 700, of whom 250 are medical students. Professor Stuart is the heart and soul of the medical school and its present dean.



Medical School, University of Sidney.

The medical school is the gem among all the university buildings. It owes its origin largely to the indefatigable efforts of Dr. H. G. Douglass, Sir Charles Nicholson, Mr. Wentworth, Professor John Smith and Dr. Richard Greenup. The first medical school commenced its work in 1883 in a four-room

cottage. The palatial new college building was completed in 1890 at a cost of $100,000, one of the finest buildings of its kind in the world. It is a massive stone building in imitation of the university building, with tile floors throughout and inner finishing seldom seen in a medical college. Statuary and stained glass windows make one forget one is in a medical college. One imagines he is in a cathedral or a palace. The stained glass windows do not immortalize saints, but the men in our profession whose work has made medicine and surgery what they are to-day. The inner architecture corresponds with the beauty of its external appearance. The lecture rooms and laboratories leave nothing to be desired. What a pleasure it must be to work in such a building!

MELBOURNE UNIVERSITY AND MEDICAL SCHOOL.

The Melbourne University is indebted for its foundation to the public enterprise of the late and well-known English statesman, Mr. Hugh Childers, formerly an inspector of schools in the state of Victoria, and to Mr. Latrobe, its first governor. The former introduced a bill into the legislative council for incorporating and endowing the University of Melbourne in 1853. The bill met with little opposition and was passed the same year. The university commenced work with three professors and 16 students in April, 1855. At the annual examinations of students in 1899, 341 passed. Its present attendance is from 700 to 800, of which number about 250 are medical students. It receives an annual endowment of $45,000 from the government which, with the gifts, bequests and fees, suffice to meet the current expenses and leave a sufficient residue for making improvements as needed. The buildings are not so expensive as those of the Sydney University. The whole university plant consists of a group of buildings, each of which is devoted to the department for which it is intended. For instance, the medical school is made up of a number of separate one-story stone or brick buildings, representing as many departments. Melbourne Hospital and the Children's Hospital furnish the clinical material. Professor Allen is dean of the medical faculty and professor of anatomy and pathology. He is a remarkable man. He is a graduate of the university and has acquired his professional knowledge of anatomy and pathology by the hardest kind of work within the shadows of his beloved alma mater. The choicest fruit of his ceaseless labor has been a pathologic museum containing thousands of the most interesting specimens, which he has prepared and labeled with his own hands. Besides this, he keeps a record of all the findings of the postmortem examinations at the Melbourne Hospital and has also filed away the clinical history of each case. I believe he could walk through the great museum hall and pick out any particular specimen blindfolded; not only this, but he could give the astonished visitor a minute description of them all. He showed and demonstrated to me scores of the rarest and most interesting specimens. He has one of the finest collections illustrative of the pathologic anatomy of hydatid, actinomycosis and bone disease. He relies on wood alcohol in the preparation and preservation of the specimens. The specimen jars are covered with heavy tin foil, which can be removed and replaced with the utmost ease, and the tin foil cover properly applied over the mouths of the jars effectually prevents the evaporation of the liquid, the loss during a year from this source being insignificant. Professor Allen has become satisfied from his immense experience that malignant disease among the aborigines is extremely rare; on the other hand, syphilis is very common. Everything in his museum shows system and order, a beautiful and rich workshop for anyone who seeks information in this branch of medical study and teaching. Professor Allen knows how to get the best work from his students. He has published a little interleaved book, "Pathological and Histological Methods of Sections," for the junior students, in which a brief description is given of the mechanical part of the work and the blank pages are filled in by the students with notes and drawings. A somewhat similar plan is followed in the bacteriologic laboratory.

ADELAIDE UNIVERSITY AND MEDICAL SCHOOL.

The University of Adelaide, the youngest and smallest of the Australian universities, was incorporated in 1874. It commenced work two years later with the Arts course. Other schools were gradually added until the university was able to give its students, besides degrees in arts, degrees in law, medicine, science, music, agriculture and engineering. It receives a substantial government aid and has been endowed by a number of handsome donations and bequests, among them one of $480,000 by the late Sir Thomas Elder. The Elder Conservatory of Music, opened in 1898, commemorates this munificent gift. Its present attendance does not exceed 400, of whom about 120 are medical students. The primary branches of the medical school are taught in separate buildings. The anatomy building, the real home of Professor Watson, is a large one-story brick building. Here he dwells among his students from morning until dusk, often unconscious of the lunch hour, his mind bent on unraveling the mysteries of human anatomy and in supervising, directing and encouraging the students in their work. If any new discovery is made in anatomy anywhere in the world he is sure to learn of it, test it, and make use of it in his teachings. He takes special delight in demonstrating to his students Byron Robinson's utero-ovarian circle. He fully appreciates the importance of applied anatomy and never loses an oportunity to show the intimate relationship between it and operative surgery. A visit to Adelaide without seeing and knowing this interesting man would be about as unprofitable as a journrey to Rome without seeing the pope or at least making a visit to the Cathedral of St. Peter. Another most interesting member of the medical faculty of Adelaide University is Professor Stirling, professor of physiology and director of the natural history museum. A combination of these two important offices makes him one of the busiest men in Adelaide. He is equally at home in his physiologic institute as in the great hall of the museum crammed from floor to ceiling with the choicest specimens of the animal and vegetable kingdoms of his own country as well as from all parts of the world, and the products of man's ingenuity from the stone age up to the most recent inventions. This part of his work is to him a labor of love. He has made this museum what it is, the best in Australia and the peer of many in countries that count their age by centuries. From what has been stated it must become clear to anyone that the Australian universities offer to medical students advantages and opportunities equal to if not superior to any of the medical schools of America and the United Kingdom. It would be folly for any Australian medical student to cross the ocean in either direction in search of something better, because if he did he would certainly meet with keen disappointment.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Olive Oil Injections for Constipation.

Hershell, in the *Lancet*, Oct. 1, 1904, describes his method of treating selected cases of constipation by the injection of olive oil. The two points which he emphasizes as necessary to be observed in successful results obtained with this method are: 1, Select suitable cases; 2, that the injections be given in the proper manner. Cases like the following we can not hope to benefit: Constipation depending on improper food or hard drinking water, or as a result of pyloric stenosis or gastric myasthenia. The following classes give the most gratifying results by the use of olive oil injections: 1. Cases depending on chronic colitis. 2. Constipation associated with spasm of

the bowel such as we so frequently find in neurasthenia. 3. We may use this method with advantage to secure a daily action of the bowels in atony of the intestines whilst the affection is being treated by electrical methods. In these last cases the first week or two are most trying to both physician and patient, as all purgatives have been abandoned and the treatment has not yet had time to restore sufficient tone to secure a daily relief. In these circumstances oil injections render us invaluable aid, and if properly given are usually sufficient to keep the patient comfortable.

THE METHOD OF INJECTION.

The method consists in the injection of from 3 to 10 ounces of warm olive oil in the rectum at bedtime. This is retained during the night and usually results in an evacuation after breakfast on the following day. If the oil is introduced slowly, at a low pressure by the force of gravity, the patient should have no difficulty in retaining it for some hours. The following is described by the author as the best apparatus to be used in giving the oil injections: "A glass funnel of a large relative capacity to its height and provided with a metal loop by which it can be suspended at a convenient height above the bed on which the patient lies, is fitted with about 27 inches of rubber tube of large caliber, and terminates in a nozzle of special construction. This latter has a large bore to allow the ready passage of the oil which invariably clogs the nozzle supplied with ordinary enema apparatus, and has the end bore well rounded, so that even when roughly and unskillfully used it is impossible to damage the mucous membrane of the rectum, and from its shape it is self-retaining. For durability and cleanliness it has been constructed of aluminum. The outflow of the oil is controlled by a spring clip which is so contrived that when opened it will remain so until a catch has been released. The injections can easily be made by the patient without assistance. The oil is first heated by standing the beaker containing it in a basin of hot water. The funnel is hung on a nail or hook driven into the wall above the bed. The patient lies on his back directly under it with the hips on a pillow, introduces the nozzle and waits until the funnel is empty. For the first few times it may be necessary to apply a pad of wool to the perineum to absorb any oil which may be expelled. It is best to commence with five or six ounces and to reduce the dose daily until the smallest amount which will produce an action of the bowels is found. If five ounces is not sufficient it may be raised to ten, but beyond this it is not advisable to go, and in cases where this is insufficient the oil may for a few days be supplemented with a small water injection before breakfast. In any case after a few days it will probably be found that a few ounces of oil alone at bedtime will produce a daily evacuation. When this stage has been arrived at this dose can be given nightly for two or three weeks. The effect may then be tried of using the oil on alternate nights. It will probably be found that the bowels will be opened on the days following the intermission, and as the case progresses the action of the oil will extend over a longer time until it will be followed by several daily stools. When this period arrives the injection should be ordered to be taken only on the evening of the day on which an action has not taken place."

Eczema.

The following methods of treating this condition are given by Lassar, in the *Dermat. Ztschr.*, 1904, No. 2:

1. It is necessary to inquire very carefully to discover the cause of the cutaneous inflammation. Very frequently the cause is found to be some external irritant rather than some perversion in the constitution or the blood. If the dermatitis is recent, induced by some external irritant, it is necessary to purify the surface, which may be done as follows: A warm bath with the addition of bran and a bland, never a medicated, soap, or by fomenting with an infusion of camomile flowers. Then the affected parts are to be enveloped for half an hour, three times a day, in compresses moistened with a 1 to 1,000 watery solution of zinc sulphate. The compresses are to be replaced by fresh ones as soon as they become warm. This alternation of evaporating fomentation and cooling contraction imitates the natural activity of the absorbing capillaries, and is grateful to the patient. Directly on the moist follows the dry treatment, which consists of the free application of a simple dusting powder, the cheapest and most serviceable being a fine pure talc. If itching is prominent a 1 to 2 per cent. solution of carbolic acid may be added. If burning is present it is well to add from ½ to 1 per cent. of menthol. By the establishment of a protective layer, frequently renewed and kept in position by bandages, the damaged epidermis is replaced by a regenerated epidermis. This method of procedure in time renders the skin dry and its smoothness can be restored if a paste composed of zinc oxid 60 parts, olive oil 40 parts, be thickly smeared on, dusted over with talc, covered with cotton-wool and a light bandage applied. In the morning the part is best cleansed by olive oil to avoid fresh irritation. If pustules form each one should be opened with an aseptic knife, compresses moistened with aluminum acetate are to be applied and later a vaselin starch paste:

℞. Zinci oxidi
Amyli, āā 3ii 8
Vaselini .....℥ss 15
M. Sig.: Apply as directed.

Acidi salicylici gr. x-xx (.6-1.2) may be added if itching is intense. In the parasitic forms, if superficial, this same paste with the addition of from 10 to 20 per cent. of sulphur is efficient. When deeper infiltrations are present a success is hardly possible without tar. The crusted eczema of the face in children can be rapidly cured if managed as follows: It must be carefully cleansed, oiled over, then washed without so much friction as to occasion bleeding; then thickly smeared with a salve of

℞. Olei rusci
Sulphuris sublimati, āā.....℥ss 15
Vaselini
Saponis domestici, āā.....℥i 30
Cretæ albæ 3iiss 10
M. Sig.: Apply locally, cover with powder and bandage.

Chronic Furunculosis.

Gaucher, in *Rev. de Therap.*, July 15, 1904, recommends boric acid internally against relapsing furunculosis. He says that this is a harmless substance if it is chemically pure and not taken in too large doses. He prescribes it as follows:

℞. Acidi borici (C. P. recrystallized).....℥i 30
Aquæ dest.....℥xxxiii 1000

Of this solution the patient is to take a tablespoonful at each meal, well diluted. If undiluted it is apt to give rise to cramps. The boric acid is alternated with tar (a teaspoonful of tar water in half a glass of Vichy water), and with arsenical preparations in the following manner: During the one week the tar and alkaline water, during the second week the boric acid solution, during the third week a solution of sodium arsenate. Repeat the same cycle.

Medicolegal.

Insanity and Criminal Responsibility.—According to the recently reported decision of the Court of General Sessions of Delaware, in the case of State vs. Jack, a prosecution for assault with intent to commit murder, it was claimed that some four years previously the accused had been injured in his head in a game of football, which occasioned concussion of the brain and occasional fainting spells; that for some time prior to the alleged assault he had also been addicted to the excessive use of cocain, and that from these causes his mind was so affected that at the time of the alleged assault he was insane—that is, so demented as not to be criminally responsible for his actions. This, if true, it was held, was a complete defense, it being said that the law regards a person in such mental condition as incapable of committing crime. Insanity may be either total or partial in its character. It may be either permanent or temporary in duration. Where insanity of a permanent charac-

ter is once established by the evidence, it is presumed to continue until the contrary is proven satisfactorily; but, if the insanity be of a temporary character, no such presumption arises. To exempt a person from responsibility for crime, the insanity must be of such a character as either to deprive him of the capacity to distinguish between right and wrong in respect to the particular act committed, or to deprive him of sufficient will power to choose whether he would do the act or refrain from it. So long as a person has capacity to distinguish between right and wrong in the particular act, and has will power to do it or not to do it, he will be held criminally responsible, even though the mind is subject to hallucinations, melancholy, exhilaration, or is otherwise affected from the use of cocain, intoxicants, or any other cause. In considering the defense of insanity, the jury must direct their attention to the time of the alleged assault particularly, for, while much testimony had been admitted as to the mental condition of the accused before and after that time, it was admitted only with the view to throw light on that precise time and event. If he was sane at the time of the alleged assault, he was responsible, it mattered not what may have been his condition at any other time or place. Every person is presumed to be sane until the contrary is proved to the satisfaction of the jury. Insanity being a matter of defense, the burden of showing it is on the defendant. It must be proved as a fact to the satisfaction of the jury. If the proof does not arise out of the evidence offered by the state, the defendant must so establish it by distinct evidence. Evidence tending to show the absence of motive may be considered in determining the question of insanity of the accused, if any such evidence there be.

Why Insanity Must Be Proved, Rather Than Sanity.—The Supreme Court of Rhode Island says, in the homicide case of State vs. Quigley, that the question as to the rule of evidence where insanity is a defense to crime has arisen in almost every state of the Union and in the courts of the United States, and between the decisions of these courts there is a hopeless conflict. It would be a fruitless task to review in detail the cases where the question has been considered, for they are divided into two classes, which follow substantially the same two divergent lines of reasoning. The English rule implies that the question of guilt and the question of insanity raise two distinct issues, and that, while both may be involved in the final verdict, the burden of proof upon each issue lies upon different parties. The American rule, so called, holds that in a criminal case there is but one issue, and that the burden throughout is on the prosecution to prove not only the criminal act, but the capacity of the accused to commit it beyond a reasonable doubt. This court thinks the first of these positions is the more logical. Sanity is not an ingredient of crime. It is a condition precedent of all intelligent action, as well benevolent as nefarious. It is a quality of the actor, not an element of the act. It is incumbent on the prosecution to show the commission of the act, and from this showing and its circumstances to sustain the inferences of malice and such emotions as the particular crime may include. But sanity is not one of these inferences. It is a pre-existing fact which may be taken for granted as implied by law and general experience. We do not infer sanity from the criminal act as we do malice and premeditation. Sanity is a premise, not a conclusion. It is argued that criminal intent, malice and premeditation are facts to be proven by the prosecutor; that these can not exist in an insane mind; hence sanity must be proved by the prosecutor. But these are facts of mental condition and action, and they can only be proved by inference from material facts, circumstances and acts. It is incumbent, therefore, on the prosecution to prove such material facts, circumstances, and acts as would compel the inference of guilt in a sane person, and this is the limit of his burden. In murder the prosecution must establish the act, and, either by inference or additional evidence, malice and premeditation. If these ingredients of the crime can not exist without sanity, sanity is presumed. The defense of insanity admits the act, but not the crime. Sanity of a human being is an assumed fact, never depending on evidence until it is disputed. The presumption of sanity continues after the presumption of innocence has been overcome. Evidence is required to overcome it, and the accused must furnish this evidence. If the evidence on this point simply balances, and so produces no probative effect on the mind, the presumption of sanity survives, and the judgment that the man is guilty remains unshaken. Sanity is a condition which does not require proof until its existence is denied. When the well-established, but absolutely arbitrary, rule is announced that all facts constituting the crime must be proved beyond a reasonable doubt, it can not logically be held to include a fact which is not required to be proved at all. Insanity is not a normal condition, but a positive disease; and positive proof may reasonably be required to establish it as a fact to be regarded in making up a judgment on any question where it is relevant.

A Novel Crime and Its Punishability.—The Court of Appeals of Kentucky says that, taken as a whole, the case of Commonwealth vs. Hicks presented an anomaly seldom found in the annals of actual crime. The crime with which the accused stood charged was the somewhat novel one of being accessory before the fact to the self-murder, or suicide, of one Chris Haggard. Section 1128, of the Kentucky Statutes of 1903, provides: "In all felonies, the accessories before the fact shall be liable to the same punishment as the principal, and may be prosecuted jointly with the principal, or severally, though the principal be not taken or tried, unless otherwise provided in this chapter." The court holds that it can not be said that an accessory before the fact in self-murder is not liable to punishment under the terms of the statute, because, his principal being of necessity dead, he can not be punished by any earthly sentence for his crime. Suicide at the common law is murder, and the Kentucky statute fixes the punishment of willful murder at death or confinement in the penitentiary for life, in the discretion of the jury. The case stands, in principle, as if one was accessory before the fact for the murder by his principal of a third person, and, after the commission of the crime, the principal should immediately kill himself. In this case, it would be impossible to punish the principal, but it is not believed that under any sound reasoning the accessory would thereby go scot free. On the contrary, the very object of the statute is to make the punishment of the accessory entirely independent of the conviction or punishment of the principal. Wherefore, the court concludes that under the law as it now stands in Kentucky, an accessory before the fact in a case of suicide is subject to the punishment for the crime of willful murder. In this case, the accused smilingly said to one Sears: "I am on my way to purchase morphin for Chris Haggard. I reckon he is going to kill himself." In the presence of his sister, Lucy Hicks, Haggard, while playing on a guitar, and seemingly in the best of spirits, appointed the day of his death and refused to extend the time to accommodate the engagements of a friend beyond one day—from Friday until Saturday. At the appointed time he was found by a physician dying from opium poison. No one seemed to have regarded the matter otherwise than in the light of a joke, and the motive, if there was one, was not disclosed. An analysis of the evidence, and the enforcement of the provisions of the code on the subject of confessions, the court holds, warranted the trial judge in giving a peremptory instruction to find the accused not guilty.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

October 22.

1 *Some Problems in the Life-history of Pathogenic Micro-organisms. Theobald Smith.
2 The Modern Conceptions and Methods of Medical Science. W. T. Councilman.
3 *The Early Diagnosis of Pulmonary Tuberculosis. Wm. F. Cheney.
4 *Dilation and Curettement of the Uterus. John M. Fisher.
5 *Shorten the Time from the Cow to the Baby. Arthur R. Reynolds.

1. **History of Pathogenic Micro-Organisms.**—Smith points out certain biologic problems which seem to lie on the surface, as it were, and which illustrate the close relationship existing between bacteriology and general biology. He also advances the hypothesis that the tendency of all invading micro-organisms in their evolution toward a more highly parasitic state is to act solely on the defensive while securing opportunity for multiplication and escape to another host. It is largely through the phenomenon of parasitism that nature attempts to restore the equilibrium, and in this micro-organisms play the most important part. As soon as the individual falls below a certain level, he may become the prey of a microscopic, or even ultra-microscopic worm. Hence, the importance of bacteriology in medical science.

3. **Early Diagnosis of Pulmonary Tuberculosis.**—Cheney is a firm believer in the value of old and well-tried methods—the clinical history and the physical examination—in the early diagnosis of pulmonary tuberculosis. Of the newer methods, sputum examination does not give information early enough; tuberculin may give a reaction when no active tuberculosis is present, and may fail to give a reaction when active tuberculosis is present. The Roentgen ray confirms what physical examination has already discovered, but does not tell us anything that can not be found out in other ways. Furthermore, Cheney doubts the value of the Roentgen ray in the diagnosis of early pulmonary tuberculosis; he has not found it reliable. The sources of error in the diagnosis of early pulmonary tuberculosis mentioned by Cheney are: 1. Preconceived ideas: Physicians are apt to approach the examination of a case with their minds made up beforehand that the patient has or has not tuberculosis, and then proceed to find facts which will support their view. 2. Inattention to details: In early diagnosis the changes from the normal are very slight, and it is by many little things that by themselves mean nothing, but put together mean everything, that a diagnosis must be reached. 3. Lack of persistence in examinations: It is impossible to reach a definite decision after one examination. The evidence obtained must be gone over again and again before a conclusion is arrived at.

4. **Dilatation and Curettement of the Uterus.**—Fisher reviews the indications and contraindications for the performance of this procedure and describes in detail the various steps of the operation, and instruments to be used, and the after-treatment, but offers nothing new.

5. See abstract in THE JOURNAL, October 8, page 1078.

Medical Record, New York.

October 22.

6 The Gynecologic Importance of Prolapsed Kidney. Augustine H. Goelet.
7 The Pathogenesis and Treatment of Edema. Wm. J. Dougherty.
8 The History of Tuberculosis. John B. Huber.
9 *My Experience with Light Therapy. Julius Rosenberg.
10 *Ainhum; Report of Case. Henry M. Blum.
11 *Report of Two Fatal Operative Cases. Irving S. Haynes.
12 Aural Reflex Phenomena. J. J. Richardson.
13 A Case Illustrative of the Unclassified Troubles of Women. Eugene C. Savidge.

9. **Light Therapy.**—Rosenberg is convinced, more than ever, "that in light we possess a remedy of no mean order, and one which in the near future will occupy a most exalted position as a therapeutic agent." He reports 27 cases confirming his statement, and showing that blue, violet and ultra-violet rays are almost a specific against pain, such as lumbago, torticollis, pleurodynia, acute and chronic neuritis. The ultra-violet light rays are obtained from an iron-carbon arc of high amperage. The bactericidal powers of the chemical light rays are easily demonstrated in inflammatory conditions of the skin of parasitic origin. In acne and furunculosis, the curative effect is both prompt and certain. His results in gonorrheal peritonitis and catarrhal inflammation of the deep urethra and adjacent structures have been encouraging and justified by the trials, he thinks. In rheumatic arthritis the rays failed to be of much benefit; Rosenberg's results, in this respect, being at variance with those reported by German authors. He believes that the ultra-violet rays may be of some assistance in the treatment of pulmonary tuberculosis, gonorrheal and tuberculous infections of joints and in lessening the pains accompanying locomotor ataxia.

10. **Ainhum.**—Blum gives a brief résumé of what is known concerning this disease and cites one case, a negro woman, aged 65. The disease occurs almost exclusively among the dark-skinned races of certain tropical and sub-tropical regions, and is characterized by a progressive constricting sclerotic ring around the bases of the digits of the hand or foot, especially selected the little toe of either or both feet, and ending in a gradual amputation of that portion of the affected member distal to the constriction. Formerly the disease was characteristic of the negro race, but it has gradually become a disorder to which other races may be subject. Blum suggests that this is probably due to the emigration of the negro from his former home. Ainhum is very insidious, the condition progressing slowly for years, in some cases lasting as long as twenty years. The disease is painless at first, but as the constricting ring grows tighter and fissures appear, pain becomes very troublesome. It is purely a local condition and it never recurs at the site of amputation. Its duration is sufficient to differentiate it from Raynaud's disease. In leprosy, which may be confused with ainhum, changes are to be seen in other parts of the body and pain is absent. Blum agrees with Matas that the disease is a tropho-neurosis, and not an infectious disorder. In the case he reports, the toe was disarticulated at the metatarso-phalangeal joint under cocain anesthesia. The wound healed rapidly without any further manifestation.

11. **Two Fatal Cases.**—The first case reported by Haynes is one of hypertrophic cirrhosis of the liver on which a Talma's operation was done. The patient died on the morning of the sixth day after the operation with symptoms suggesting sepsis; temperature, 102.6; pulse 136, and respiration, 30. In the second case, one of carcinoma of the head of the pancreas, a cholecystenterostomy was done between the gall bladder and the transverse colon, a Murphy button being used to effect the anastomosis. The union between the two viscera was apparently so even and firm that no supporting sutures were added, which, in the author's opinion, was an error of judgment. The region of the anastomosis was drained by a small gauze wick on either side, with a medium-sized rubber drain placed within the gauze and the wound closed by layer sutures. All went well until the tenth day, when the patient complained of a diffuse pain in the abdomen. Temperature, pulse and respiration became high, to be followed by a subnormal temperature, as low as 96, which lasted for three days, when the patient succumbed gradually. Haynes believes that the failure of the aproximation to produce firm union allowed leakage of bile after the slough had freed the button. The abdominal cavity was filled with bile-stained fluid and the cause of death was failure of the gall bladder and colon to unite, only one-half of the area constricted by the Murphy button having joined.

New York Medical Journal.

October 22.

14 *The Roentgen Rays in the Treatment of Fractures and Adjustment of the Fragments Under the Eye, by Use of the Fluoroscope. Harry L. Gilchrist.
15 Inaccuracy in Clinical Thermometers. Caswell A. Mayo.
16 Quintuplets. Albert Bernheim.
17 *Syphilis Continuously Treated by Intramuscular Injections of Mercury Salicylate. D. A. Sinclair.
18 Vulvovaginitis in Little Girls. A Clinical Study of 190 Cases. (Continued.) Sara Welt-Kakels.
19 Two Cases of Paralysis of the External Recti Muscles of the Eyes, Tabetic in Origin; Improved by Operation. Frank N. Lewis.
20 A Contribution to the Surgery of Nephritis. Report of Case. C. W. Wille.

14. **Roentgen Rays in the Treatment of Fractures.**—Gilchrist details the advantages of using the *x*-rays in the treatment as well as for the diagnosis of fractures. The apparatus necessary for this method of managing fractures is a complete *x*-ray outfit, of either coil or static machine, and the usual accessories. An ordinary wooden-top table can be utilized for the patient, or one can be improvised by laying two

pieces of pine lumber, 6 feet long by 12 inches wide and 1 inch thick on a firm support about 18 inches high. The tube is placed on a stand underneath the table, from 4 to 8 inches from the under surface of the board. As an extra precaution to prevent burning, the table can be covered with a rubber blanket. By placing the fluoroscope over the injured part the conditions of the fracture can be seen constantly, as can also every movement of the fracture extremities during their adjustment, thus avoiding the necessity of giving an anesthetic for diagnostic purposes, saving the patient many painful manipulations, and the tissues from bruising and laceration by unnecessary handling. The method, in short, consists of setting the fracture under the fluoroscope.

17. **Intramuscular Injections of Mercury Salicylate in Syphilis.**—Sinclair says that intramuscular injections of salicylate of mercury possess many advantages over inunctions, fumigations and the internal administration of mercury. They are more scientific and accurate; the gastrointestinal tract and the skin are relieved of irritation; they are quick and sure of action, the symptoms disappearing with wonderful rapidity; they are applicable in all three stages of the disease, noncompromising, easy of administration; do not produce abscesses, and permit of perfect control of the patient. Because of their insoluble properties and slow absorption, they can be given in larger amounts than could be used of the soluble salts of mercury. The salicylate of mercury needs to be injected but once in 7 days. Relapses are extremely rare and are due to the smallness of the dose. The local phenomena following the injection are *nil* in nearly every case, although there may be slight pain, due to the introduction of the needle. In a small number of cases there is apt to follow, in from 6 to 24 hours, slight lameness, with dull pain more or less severe, at the site of the injection. This may be accompanied by an itching or burning subcutaneous nodule. The drug should be suspended in a heavy liquid. The dose of an injection in ordinary cases is 1½ grains of the drug. The most favorable site for the injection is the gluteal region. The calf of the leg or the muscles of the back or chest may be chosen.

Medical News, New York.

October 22.

21 *The Surgical Physiology of the Lymphatic System. C. H. Mayo.
22 *A Contribution to the Study of Infections of the Prostate from the Urethra. Frederic Bierhoff.
23 The Use of Absorbent Paper in the Service of Practical Hematology. T. W. Tallquist.
24 The Climate and Waters of Hot Springs, Va. Guy Hinsdale.
25 Three Cases of Probable Psittacosis. Herman F. Vickery. With Bacteriologic Report. Oscar Richardson.
26 The District Nurse in Her Relation to Cases of Pulmonary Disease. Arthur W. Fairbanks.

21. **Surgical Physiology of the Lymphatic System.**—Mayo calls attention to the fact that the relation of the lymphatic system to surgery seems to have been appreciated but little. He reviews the microscopic and gross anatomy of this system and devotes considerable space to a discussion of its physiology with reference to the production of surgical lesions, and its rôle in preventing sepsis. The lymphatic system is a drain and where there are few lymphatics, artificial drainage for some time after operative interference is absolutely necessary.

22. **Infections of the Prostate.**—Bierhoff suggests that the fact that the gonococci which enter the prostatic ducts are brought into and kept in constant contact with a secretion of a distinctly alkaline reaction, may be the explanation of the generally mild character of gonorrheal prostatic infections. He discusses the clinical history of prostatic infection and the methods of treatment followed by him.

Boston Medical and Surgical Journal.

October 29.

27 The Modern Conceptions and Methods of Medical Science. W. T. Councilman.
28 *Heart Complications in Diphtheria. A Clinical Study of 946 Cases. Franklin W. White and Howard H. Smith.
29 *The Assouan Cure. F. Gordon Morrill.

28. **Heart Complications in Diphtheria.**—White and Smith present the results of a clinical study of nearly one thousand cases of diphtheria, made to determine the condition of the heart, the character and frequency of heart lesions, and their practical importance in prognosis and treatment. About 5 per cent. of the cases were less than one year old, nearly 40 per cent. less than 5 years, and about 70 per cent. less than ten years. In about one-fourth of the cases the course was mild, about one-half were moderately ill, and in one-quarter the illness was severe. Over one-half of the severe cases proved fatal, namely, 132. About one-half of these patients died of bronchopneumonia, usually following operative interference, such as intubation or tracheotomy. About one-fourth died of heart complications. Of the remaining one-quarter, the majority died of early severe toxemia and a few of asphyxia or late paralysis. The physical signs of a greater or less degree of cardiac disturbance, such as murmurs, rapid and irregular pulse, were very common. Ordinary symptoms of heart disease, such as dyspnea, dropsy, cyanosis and hemorrhage, were not common. About 65 per cent. of the cases had a maximum pulse rate of less than 140, and the mortality among these was about 5 per cent. In general, the higher the pulse rate, the greater the mortality. Irregularity of the pulse was noted in nearly 60 per cent. of the cases. In the majority of cases its time of onset was one or two weeks after entrance. It was observed at entrance to the hospital in 12 per cent. of the cases. Irregular rhythm was most frequently observed in the severe and fatal cases. Heart murmurs were found in 94 per cent. of the cases. All the murmurs were systolic in time, with the exception of those in a few cases of chronic heart disease. These observations were confirmed in each case by two or three competent observers. In the 6 per cent. recorded as having no murmurs, the heart examination for obvious reasons, was unsatisfactory. The murmurs were heard at both apex and base in 77 per cent., at the apex alone in 30 per cent., at the base alone in about 3 per cent. The majority were associated with accentuation of the pulmonic second sound and with irregular heart action, and they outlasted the fever. The mere presence of these murmurs does not affect the prognosis. Gallop rhythm, late vomiting, and epigastric pain and tenderness are important, as danger signals of severe heart complication. The association of late vomiting with gallop rhythm renders the outlook almost hopeless. Frequent examination of the heart and pulse in the second and third week of the illness are necessary, that being the time when severe heart complications most frequently occur. Heart murmurs and irregularity are of long duration in many cases, and make it necessary to watch the condition of the heart long after convalescence in all severe cases.

29. **The Assouan Cure.**—Morrill writes of the benefits to be obtained from a sojourn in the Nubian desert. The benefit is derived from the air only, which differs from that found in conjunction with the comforts of civilized life. Dryness is its main characteristic (an average relative humidity of 41 degrees during the "season") together with a comfortable degree of warmth. This dryness, taken in connection with an average mean temperature of 67, and absence of rain, constitutes an almost ideal winter climate. The diseases which derive the greatest benefit from a prolonged stay at Assouan are nervous exhaustion, from any cause; delayed convalescence, chronic bronchitis, with emphysema and cardiac dilatation; rheumatic affections and neuralgias; cases of prolonged albuminuria, and Morrill has observed two or three cases of incipient pulmonary tuberculosis which have done remarkably well.

Cincinnati Lancet-Clinic.

October 22.

30 Indications and Limitations of Various Operations on the Gall Bladder. Charles A. L. Reed.
31 Some Therapeutic Needs. John C. Larkin.
32 Hygiene in Maternity J. S. Hanson.

St. Louis Medical Review.

October 15.

33 Personal Experience with Ergot in Gynecologic Practice. James H. Burtenshaw.
34 Gastric Atony and Its Treatment by Means of Adhesive Plaster Dressings. A. Rose.

American Journal of Obstetrics, New York.

October.

35 *Papillary Cysts and Papillary Tumors of the Ovaries with a Consideration of the Prognosis and Treatment. S. Pozzi.

36 *Intrapelvic Hematoma Following Labor Not Associated with Lesions of the Uterus. J. Whitridge Williams.
37 *The Hematom-Mole; Its Clinical and Pathologic Characteristics and Relation to Early Hydramnios. Fred J. Taussig.
38 An Epidemic of Pemphigus Neonatorum. Emma L. Call.
39 Report of Two Cases of Tuberculosis of the Ovary. Herbert L. Celler.
40 *Vaginal Cesarean Section as a Substitute for the Induction of Labor in Cases of Threatened Eclampsia or of Bright's Disease. Charles S. Bacon.
41 Case of Malformation of the Internal Genitals with the Reproductive Glands in the Labia Majora. Charles L. Patton.
42 Suppurating Cyst of Left Ovary During Pregnancy; Miscarriage; Laparotomy; Death. Charles Greene Cumston.
43 A Rare Form of Vaginal Cyst, Originating from Either the Müllerian or Wolffian Tract. Frank E. Pierce.

35. **Papillary Cysts and Tumors of the Ovary.**—Pozzi lays down the following proposition: 1. Papillary tumors of the ovary (cystic or solid) must not always be considered as malignant. Not infrequently some of these tumors never undergo malignant degeneration, and do not relapse after removal, or only after a long time, and then but locally, without metastases. 2. It is necessary to make a careful distinction between carcinomatous generalization (which takes place through lymphatics and blood vessels) and simple grafts which result from contact or from growth on the peritoneum of detached papillary vegetations of the ovary. This latter process is benign and can be compared with what happens with papillomas and warts of the skin. 3. Some of these tumors undergo a malignant process which, at the beginning very limited, may afterwards extend all over the mass and at last brings on a real generalization with cancer metastases. Before this last period and at the outset of the malignant transformation it is quite impossible to discern it with the naked eye and microscopic investigations are necessary. Even then, the examination can lead to misinterpretation if it has not been carried all over the tumor, for the malignant process may be very limited in extent. 5. In the absence of positive symptoms of malignancy, operators must always behave towards these tumors as if they were benign, and proceed to remove the largest extent possible of the neoplasm. The disseminated growths or even small parts of the papillary tumor detached and lost in the peritoneal cavity may disappear. In other cases they will be the origin of local recurrence; but these relapses can be treated successfully by major operations. 5. Frequency of successive invasion of both ovaries by papillary tumors constitutes indication for removal of the adnexa of both sides, even if those of one side are still healthy, at least in women who are approaching the menopause. In young women it would be preferable to venture a new laparotomy. Conservative operations must be performed in young women, unless the tumor removed seems indubitably cancerous, in which event it is best to make a complete removal, even taking away the uterus. 6. With bilateral papillary tumors, operative technic will be greatly simplified by performing sub-total or total hysterectomy, according to the case. Hysterectomy should be total if malignant degeneration is feared. If the bilateral papilloma is benign, sub-total hysterectomy is preferable since it is more rapid and less serious. Hysterectomy, in bilateral tumors, simplifies, to a considerable extent, the technic and makes the control of bleeding much easier. 7. Drainage is not necessary when cysts do not present outside vegetations, and when there is no ascites. When ascites is present, it is right to drain the peritoneal cavity for some time, for three or four days, with gauze, and the following days with a tube. In some special cases, a Mikulicz dressing may be necessary, but Pozzi never leaves it in longer than four days. Incomplete removal or even an exploratory incision in inoperable cases is often accompanied by a real diminution of ascites with local and general improvement. This does not justify the systematic performance of incomplete operations either through mistake or as a last resource. Exploratory celiotomy, especially if followed with temporary drainage, has a good effect even in malignant cases and inoperable neoplasm. A little incision followed by drainage for 48 hours is preferable to a simple tapping, in every kind of ascites.

36. **Intrapelvic Hematoma.**—Williams advises that in the vast majority of cases the treatment should be purely expectant, and the attempt made to tide the patient over the emergency by the subcutaneous use of intravenous salt solution and the administration of the ordinary stimulants. If, however, the tumor increases rapidly in size and the collapse becomes more pronounced, the best means of coping with the hemorrhage is by laparotomy. It is vastly superior to attacking the hemorrhage from below, as under such circumstances all that can be done is to pack the wound in the dark and then be haunted with the fear of not having successfully checked the bleeding and the possibility of a secondary rupture into the peritoneal cavity. On the other hand, if the patient is not seen until some time after the occurrence of the accident, when the acute symptoms have subsided, or the clinical picture points toward the recurrence of suppurative changes, attack by the vaginal route would appear preferable; as under such circumstances the danger of fresh hemorrhage is nominal, while the possibility of contaminating the peritoneal cavity is done away with.

37. **The Hematom-Mole.**—Taussig adds one case to eight previously reported. He considers hematom-mole a form of "missed abortion" in which the uterine retention lasts usually from six to eleven months; in which not merely the ovum as a whole, but also the amniotic cavity and the fetal membranes that at points lie in folds, is proportionately very large in contrast to the minute embryo, and in which there are found subchorionic hematomata varying in size and number, usually of a tuberous or polypoid shape. Examination of the fetuses has thus far revealed no reason for their premature death. They are somewhat smaller than their stage of development would indicate, due probably to shrinkage, but even allowing for this shrinkage the disproportion between ovum and embryo remains very great. Taussig's conception of the formation of the mole is that after the death of the fetus in the first or second month of gestation the fetal membranes and the amniotic fluid increase in volume. Thus arises a secondary hydramnios-ovum. This growth continues up to a certain point. The ovum is retained. The amniotic fluid is then gradually absorbed and the ovum, as a whole, shrinks somewhat in size. By the negative pressure thus produced, folds or invaginations of the membranes arise which become filled with the blood circulating in the intervillous spaces. By continued absorption of the fluid, together with a certain degree of stretching of the membranes by the blood clots, a hematoma is formed. In this process the insertions of the villous stems act as fixed points. If the stems are close together, a hemispherical or broad base hematoma results; if far apart, a tuberous or polypoid hematoma.

40. **Vaginal Cesarean Section.**—In the opinion of Bacon the most important element in making a prognosis in eclampsia is the presence of, the amount of, and the persistency of, albuminuria. Next to albuminuria in prognostic importance is general edema. The prognostic value of albuminuric retinitis, so far as convulsions are concerned, is no greater than that of albuminuria without retinitis. Hydramnion and multiple pregnancy are factors in the causation of eclampsia, and so are of importance in prognosis. Therefore, Bacon urges that more attention should be given edema and albuminuria when found in connection with twin pregnancy or hydramnion than when occuring in more normal conditions. He says that in cases of chronic Bright's disease the indications for operative delivery are not only those of threatened eclampsia, but likewise concern the pathologic condition due to special anatomic changes wrought by this complication. With no apparent symptom of eclampsia, life may be in danger from kidney disease aggravated by pregnancy. The emptying of the uterus having been decided on, it is necessary to choose between induction of labor and cesarean section. The objections to the induction of labor, says Bacon, are that it may excite convulsions, and it is a tedious procedure. On the other hand, after the occurrence of convulsions, when the cervix is not yet in a condition to be rapidly dilated, vaginal cesarean section is the safest method of treatment of eclampsia, if proper facilities for the operation are at hand. Possibly, in any case where cesarean section is required for any other indication than that of con-

tracted pelvis or disproportion between the size of the passage and the passenger, the vaginal section will replace the abdominal operation. Unless it is followed by hysterectomy in cases of cancer of the uterus, the peritoneal cavity is not opened. All the dangers of peritoneal contamination are avoided as well as the disadvantages of peritoneal adhesions. The incision does not reach the placental site, and thus much hemorrhage is avoided. In many cases there is no need for the hasty removal of the placenta, and hence there is much less hemorrhage than from abdominal cesarean section from this cause. The scar in the uterus is probably in a less dangerous location than in case of abdominal cesarean section. The avoidance of a scar and the frequent resulting weakness in the abdominal wall is certainly a great advantage. Finally, it will often be an advantage to employ the vaginal route, because it will be easier to secure the consent of the patient to the operation. Two cases are cited illustrating the advantages of vaginal cesarean section and describing the details of the operation.

Journal of Advanced Therapeutics, New York.

October.

44 Electricity in Medicine. A. D. Rockwell.
45 *Cataphoric Treatment of Cancer. Amédée Granger.
46 *A Case of Fibromyxosarcoma of the Sacrum of Large Size, Successfully Treated by Cataphoric Operations, with Preservation of the Sphincter. G. Betton Massey.
47 *Radiography. Herman Grad.

45. **Cataphoric Treatment of Cancer.**—Granger, who is a firm believer in mercuric cataphoresis, discusses the physics of the method, and reports twelve unselected cases treated by him. He divides the cases into three classes: First, those cases which were operable; second, those which were inoperable, and, third, those which were hopelessly inoperable. The head or neck was affected in 75 per cent. of the cases. The disease was recurrent after some cutting operations in 3 inoperable cases. Radiotherapy had been employed in 3 cases, and all 3 were made worse by its use. As the treatment had to be applied within the mouth in the majority of the cases, he constructed four electrodes for the purpose of overcoming some of the disadvantages of the ordinary style zinc points. The advantages of these points are: That after being inserted into the diseased part, they can be kept in position more easily; that two, and even three, can be employed at the same time; that, except when inspecting the mouth or changing the electrodes the mouth can be kept almost closed. Thus the patient can be kept more thoroughly under the influence of the anesthetic and with a smaller quantity of the latter. His results are summarized as follows: Operable cases:—Number treated, 3; cured, 3. Inoperable cases:—Number treated, 6; cured, 2; improved, 2 (one of these cases is still under treatment and progressing so satisfactorily that Granger hopes to include it among the cases cured); palliated, 1; failed, 1 (in this case the major application which was indicated could not be employed). Hopelessly inoperable cases:—Number treated, 3; palliated, 1; failed, 1; died, 1.

46. **Cataphoric Treatment of Fibromyxosarcoma of Sacrum.**—The tumor in the case reported by Massey was about the size of two fists and nearly filled the pelvis, the lower border curving back to the sacrum at a point about two inches from the anus. The skin over the upper portion of the coccyx was incised to admit a sharp pointed zinc-mercury electrode somewhat larger than a lead pencil, the unusual thickness of the electrode being arranged to prevent breakage when softened with mercury. Through the slit thus made in the skin, the electrode was forcibly thrust into the still healthy tissues surrounding the coccyx and directed upward into the middle of the growth by a finger in the rectum. This route was selected to avoid interference with the anal sphincter and also because it was anticipated, as subsequently occurred, that the slough would be too large to come away through an intact anus. The powerful current was slowly turned on; this quickly developed the ionized chemicals by electrolytic destruction of the anode, and disbursed them radially from the electrode, necrosing and sterilizing an increasing area of skin, subcutaneous tissue and malignant tissue surrounding the electrode. The current was gradually raised to 1,600 milliamperes, after two other electrodes of smaller size had been inserted alongside the first, and was allowed to flow steadily for three hours, when it was turned off and the patient placed in bed. The conditions present after the application were as follows: A round, grayish colored area of devitalized and sterilized skin, subcutaneous tissue and sarcoma tissue had been produced with a diameter of about three inches, extending deeply into the growth. The growth itself had become shrunken and softened. On the twenty-first day after the operation three of the bones of the coccyx and about half of the tumor came away bloodlessly. A second and final application was made one month after the first, 1,200 milliamperes being turned on and maintained for two hours. Sixteen days later the remainder of the mass came away, somewhat larger than a man's fist, and three days later the detached, devitalized, first segment of the coccyx was lifted out of the wound. Twelve months after the second application the patient was in unusually good health, with no evidence of recurrence. A microscopic examination made of a small portion of the tumor showed it to be a fibromyxosarcoma.

47. **Radiography.**—In this, the second paper of his series, Grad considers the nature of the *x*-ray, fluoroscopy, skiagraphy, the technic, and time of exposure, and the location of foreign bodies by means of the *x*-ray.

Chicago Medical Recorder.

October.

48 *The Treatment of Pathologic Face and Brow Presentations. Joseph B. DeLee.
49 The Relation of the Pulmonary Cilia to Infection. W. M. Fitch.
50 Differential Diagnosis and Complications of Appendicitis. Daniel M. Eisendrath.
51 *The Model Method of Treating Tuberculosis of the Lungs. C. H. Wilkinson.
52 Some Cases of Anemia. I. S. Lewis.

48. **Treatment of Face and Brow Presentations.**—DeLee says that not all face presentations are pathologic. The large majority of cases, if left alone, terminate spontaneously and happily for mother and child. After a careful study of many reported cases and a close review and consideration of 21 cases of face presentation coming under his care, DeLee presents the following as a guide to the treatment of such cases: 1. Normal pelvis, normal child (size and condition), chin anterior—watchful expectancy. 2. Normal pelvis, normal child, chin posterior—at first expectancy; when it is apparent that the chin shows no tendency to rotate to the front—manual correction of the presentation, that is, changing the face to occipital presentation; failing in this—podalic version. 3. Normal pelvis and child, face deep in pelvis, with chin in anterior or nearly anterior position, give a strict indication for delivery—forceps. 4. Normal pelvis and child, face deep in pelvis, with chin in posterior position, version being contraindicated—a careful trial of manual correction. If it fails—craniotomy or symphysiotomy are the alternatives. Forceps are nearly always contraindicated, because fatal to child and injurious to mother, wherefore the cranioclast is more humane. 5. Flat contracted pelvis, of mild degree, normal child—version as the operation of election. 6. Generally contracted pelvis of mild degree, normal child—manual correction, followed by expectancy. 7. Face presentation complicated by placenta previa, prolapse of cord, or extremities, rigidity of cervix, threatened rupture of the uterus, a dead or dying child, monstrosities and highly contracted pelvis—offers no good field for the manual correction, although rarely it may be done. Version and other operations are preferable. One must individualize strongly and carefully weigh the indications and conditions of each case before determining the course of procedure. DeLee's method is to correct the attitude of the fetus by internal manipulation mainly, and aided by the outside hand. Certain conditions must be fulfilled before deciding on manual correction of the mal presentation. First, the cervix must be dilated. Second, the bag of waters is ruptured. Third, the child not too large nor the pelvis too small. Fourth, the uterus must not be on the point of rupture. Fifth, the child must be living and viable. Anesthesia is needed and it should be profound. The operation is divided into four parts: 1. Raising and freeing the head and shoulders. 2. Flexing the chin and pressing down

the occiput. 3. Pushing the shoulder and chest to one side. 4. Forcing the flexed head down into the pelvis. The steps of the operation are described in detail. During the operation the back of the hand should give warning of any thinning or tear of the uterus, which is a signal for the immediate cessation of all manipulations. A gentle trial of the high forceps is then in order, failing which, craniotomy is the alternative. Brow presentations always require interference and DeLee believes that they should be corrected early in labor, the head not being allowed to enter the pelvis in this abnormal attitude. The conditions and contraindications surrounding the manual correction here are the same as in face presentation. After molding is well advanced the forceps may occasionally bring a living child, but the operation should not be forced, as the object striven for, a living child, is likely to be lost in the attempt, and an injured mother will have to be accepted with the bad bargain.

51. **Model Treatment of Pulmonary Tuberculosis.**—Wilkinson's paper is a review of the generally favored hygienic, climatic, dietetic and tonic treatment of tuberculosis.

Northwestern Lancet, Minneapolis.

October 15.

53 *Treatment in Diabetes. LeRoy Crummer.
54 *Embolism of the Axillary Artery Following Chronic Endocarditis. George E. Sherwood.
55 Expert Evidence in Court. R. S. Joyce.
56 *Singultus. W. B. Gulick.

53. **Treatment in Diabetes.**—That the treatment of diabetes requires not only the closest attention to details on the part of the physician, but also absolute obedience on the part of the patient is the burden of Crummer's paper. He says that in the severe cases a single dietary indiscretion on the part of the patient is just as dangerous as a single slip on an unsplinted leg with an ununited fracture. Care must be taken not to advise any treatment that will favor the production of acids and the ensuing danger of coma. As a third consideration, one must reduce, or cause to disappear, the dextrose in the urine. All this is done by calculating the proper diet for the individual case—one that does not contain too little carbohydrate, for there is the danger of acid production; nor too much, for then there is the danger of further impairing the already diseased sugar-retaining power.

54. **Embolism of Axillary Artery.**—Sherwood reports a case of embolism of the axillary artery consecutive to a chronic endocarditis in which gangrene of the forearm ensued, necessitating disarticulation at the shoulder, which was done after the oval flap method of Larrey. The patient rallied from the operation, and after a somewhat slow and eventful convalescence, made a complete recovery. The points emphasized by Sherwood are: First, the rarity of this complication following chronic endocarditis; second, would it not be possible in the case of an embolus lodging in as large an artery as the axillary or femoral, to attack the condition surgically as soon as the diagnosis could be made, open up the artery, remove the embolic plug, sew up the vessel and thus save the patient's limb and possibly his life.

56. **Singultus.**—This subject is discussed by Gulick, and a case is narrated in which the usual methods of treatment failed to give any relief. Finally ether was administered, after which the patient hiccoughed less often. After six hours of sleep, produced by the administration of ¼ grain of morphin, the hiccough became less frequent and within two days had stopped altogether.

Detroit Medical Journal.

October.

57 *The Necessity for a Periodical Examination of the Apparently Healthy. Alexander MacKenzie Campbell.
58 *Intratracheal Injections in Bronchial and Pulmonary Affections. Willis S. Anderson.
59 The Use of Rubber Gloves as a Prophylactic in Obstetrics. F. J. W. Maguire.
60 A Brief History of Cystoscopy and Ureteral Catheterization. Byron Robinson

57. **Examination of Apparently Healthy.**—If a man in apparent health shows a proclivity to weakness in one or more parts of the body, that tendency, says Campbell, should be overcome by careful observation and necessary treatment. Diseases of the lungs, circulatory system, blood and ductless glands, nervous and digestive system, may be recognized before they have any apparent effect on the health. The individual should be examined periodically, at least yearly, in every detail. Whenever there is the slightest indication a bacteriologic and chemic diagnosis should be made. People in apparent health should be educated to the necessity of subjecting themselves to a periodical physical examination.

58. **Intratracheal Injections.**—Anderson has made a large number of experiments on dogs to prove the absorbability of drugs in the bronchial mucous membrane, and to prove that a considerable quantity of a non-irritating liquid can be introduced into the bronchi without injury. He has tried various liquids with a view to testing the relative irritability of the different vehicles, and olive oil was found to be non-irritating, and in every way suitable as a vehicle for the medicaments. Intratracheal injections offer a direct method of introducing medicaments and allow germicides to come directly into contact with the affected part. He is convinced that they are absorbed into the circulation and act systematically as well as locally, without taxing the stomach. Among the substances experimented with were the oils of eucalyptus, thyme, cinnamon and wintergreen, which may be employed singly or in combination in from 2 to 5 per cent. solution in olive oil. Menthol he found to have a local sedative action. It may be combined with camphor. Campbell's favorite formula is a sterilized mixture of camphor, menthol 5 per cent., oil of eucalyptus 5 per cent., guaiacol 2 per cent., in olive oil. The solution and syringe should be warmed to body temperature before they are used. A syringe with a suitable curved cannula is used. From 1 to 2 drams is the proper dose, which may be repeated in a few minutes. Daily treatments usually give the best results. The injection should be given with the aid of a laryngoscopic mirror or direct. The tongue in each case is held out and the patient inhales as the injection is given. He advocates the use of these injections in the congestive stage of acute bronchitis, the so-called "winter coughs," asthma, and phthisis, except in advanced stages.

Indiana Medical Journal, Indianapolis.

October.

61 An Epidemic of Asiatic Cholera. John G. Wishard.
62 Tetanus Resulting from Fracture of Thumb. J. G. Jones.

Buffalo Medical Journal.

October.

63 Chinese Doctors and Medical Treatment. Mrs. J. F. Bishop.
64 Chinese Medicine and Surgery in New York. Nelson W. Wilson.

Texas Medical Journal, Austin.

October.

65 Ilio-colitis—Etiology and Treatment. E. B. Parsons.
66 The Vaginal Route in Pelvic Surgery. O. L. Norsworthy.
67 Treatment of Typhoid Fever. Robert M. Sterrett.

Clinical Review, Chicago.

October.

68 Medical Clinic. J. M. Patton.
69 Surgical Operations in Private Houses. John G. Sheldon.
70 Occupation Neuroses. L. Harrison Mettler.

Medical Times, New York.

October.

71 Solitary Kidney. Byron Robinson.
72 The Search for Health in the Various Phases of Climate. A. K. Yost.
73 The Fight Against Tuberculosis. G. R. Johnson.
74 Bad-Nauheim and Its Treatments. J. Howe Adams.

Maryland Medical Journal, Baltimore.

October.

75 Remarks on the Etiology and Treatment of Diabetes Mellitus. (Concluded.) Thomas B. Futcher.
76 Disinfections for Diphtheria and Scarlet Fever in Baltimore, with an Account of Reinfections. Wilbur P. Stubbs.

Northwestern Lancet, Minneapolis.

October 1.

77 Sundries. T. L. Hatch.
78 The Social Status of the Doctor. A. S. Condon.
79 Notes on Some Recent Progress in Neurology. E. G. Gowans.
80 Penetrating Wounds of the Eyeball. L. W. Snow.
81 Case of Gastrectomy for Carcinoma. E. F. Root.

Journal of the Kansas State Medical Society, Lawrence.

October.

82 Eye Reflexes. R. J. Peare.
83 The Expectant Mother. Edwin T. Shelly.
84 Evolution. The Evolution of Man, Physical, Mental and Moral—Its Hindrances and Helps. W. L. Schenck.

American Medical Compend, Toledo.

October.

85 Pancreatitis. Wm. J. Gillette.
86 Ureteral Function. Byron Robinson.
87 Surgery of Hydrocephalus. B. Merrill Ricketts.
88 Surgical Preparations. W. C. Gates.

Albany Medical Annals.

October.

89 The Present Problem of Pediatrics. Theodor Escherich.
90 The Experimental Production of Liver Necroses by the Intravenous Injection of Hemagglutinins. Richard M. Pearce.
91 A Description of Prof. Theodor Kocher's Clinic at Berne, Switzerland. James N. Vander Veer.

Journal Missouri State Medical Association, St. Louis.

October.

92 A Contribution to the Study of the Treatment of Gallstone. Herman E. Pearse.
93 Internal Administration of Adrenalin Chlorid in the Various Toxemiæ. John K. Broderick.
94 Legal View of Boards of Health. A. M. McAlester.
95 Symptomatology of Prostatic Diseases. J. Leland Boogher.
96 Resection of the Hip Joint. Ernest Lowrey.

Toledo Medical and Surgical Reporter.

October.

97 *Surgery of Hydrocephalus. B. Merrill Ricketts.
98 Surgical Preparation. W. C. Gates.
99 Treatment of Coughs Following the Acute Diseases of the Lungs, with Special Reference to Pneumonia and Pleurisy. J. W. P. Smithwick.
100 How to Curette. C. M. Harpster.
101 Diagnosis of Pathologic Conditions at the Hip Joint. Thomas H. Manley.

97.—This article has appeared elsewhere. See THE JOURNAL, July 2, ¶2.

Journal of Cutaneous Diseases, New York.

October.

102 Rhinophyma—a Pathologic Analysis of Five Separate Tumors Occurring in the Same Patient. Grover W. Wende and Charles A. Bentz.
103 An Inquiry Into the Etiology and Nature of the Toxic Erythemata. Jay F. Schamberg.
104 Xanthoma Multiplex; Histology of the Palmar Striæ. Henry H. Whitehouse.
105 Pinta: Pano Blanco; Spotted Disease of Central America. Paul G. Woolley.

California State Journal of Medicine, San Francisco.

October.

106 Inflammation of Appendices Epiploicea and Intestinal Diverticula. Emmet Rixford.
107 The Conservative Treatment of Acute Appendicitis. A. W. Morton.
108 Cases of Acute Suppurative Appendicitis Treated by the Ochsner Method. Wallace I. Terry.
109 The Action of Saline Purgatives. John Bruce MacCallum.
110 Epinephrin; the Active Principle of the Suprarenal Gland; a Second Word. Philip Mills Jones.
111 Some Mechanical Aspects of Spinal Curvature—Demonstration of Wullstein's Apparatus. James T. Watkins.
112 Pernicious Malarial Fever. William F. Blake.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

October 15.

1 Criminal Responsibility. Charles A. Mercier.
2 Criminal Responsibility and Degeneracy. Eugene S. Talbot.
3 Heredity in Its Biologic and Psychiatric Aspects. J. Beard.
4 The Problem of Heredity from the Psychiatric Aspect. W. König.
5 Dementia Precox. Conolly Norman.
6 The Cure of Quackery. A. T. Schofield.
7 *Lesions of the Posterior Columns in General Paralysis. David Orr and R. G. Rows.
8 How to Take a Family History. E. S. Pasmore.
9 *Discussion on the Treatment of Pruritus Ani. Malcolm Morris and others.
10 Discussion on the Comparative Value of the Old and New Methods of Treatment of Lupus Vulgaris and Certain Other Skin Diseases. J. H. Sequeira and others.
11 Discussion on the Relative Importance of Bacterial and Other Factors in the Causation of Skin Diseases. Arthur Whitfield and others.
12 Case of Acne-keloid. A. Douglas Heath.
13 Benign Cystic Epithelioma and Its Relationship to So-called Syringocystadenoma, Syringocystoma and Hemangioendothelioma. M. B. Hartzell.
14 Bacillus Pyocyaneus and Pemphigus Vegetans. George Pernet.
15 On Chronic X-ray Dermatitis. J. Hall-Edwards.
16 On the Non-parasitic Cutaneous Reactions. Leslie Roberts.

7. **Pathology of General Paralysis.**—Orr and Rows publish a preliminary note of a study of the lesions in the posterior columns of cords taken from cases of general paralysis with acute and constant excitement, with bedsores, with right-sided pyopneumothorax, with staphylococcus infection, with convulsions, and acute general paralysis. The spinal cords from these cases were treated by the Marchi method, each segment from the lowest sacral to the upper cervical being cut in serial sections. As the lesions had in no instance reached the stage of secondary sclerosis, their starting point was determined without difficulty. In every case the following features were constant: 1. The portion of root between cord and posterior root ganglia showed no degeneration. 2. Degeneration of the internal division of the sensory root in its intramedullary path, commencing at the point of entrance into the cord. 3. The external division, or Lissauer's area, was almost intact. 4. The collaterals and terminals passing into the gray matter shared in the degenerative process. 5. The long fibers derived from segments situated low down in the cord were also affected, as shown by the presence and position of the degenerative fibers in Goll's column in the upper parts of the cord. Without doubt the degeneration was a primary one, due to the direct action of toxins on the myelin sheath and axis cylinder. From here they spread up the perineural sheath without attacking the nerves, and degeneration took place immediately beyond the point at which the neurilemma is lost.

9. **Treatment of Pruritus Ani.**—Constitutional treatment, says Morris, is of as much importance as local treatment, and every effort should be made to determine the underlying constitutional cause of the affection, and proper treatment instituted. The first principle of local treatment is to remove any cause of irritation. The most scrupulous cleanliness must be enjoined. As an anodyne application, Morris advocates the use of a suppository containing half a grain of cocain, or a 4 per cent. ointment with lano-vaselin or boric-acid ointment as a base. Cocain may also be used in lotions with glycerin. Because of the danger of producing a cocain habit, the patient should not be allowed to use this agent either too freely or for too long a time. Menthol, a strong solution of bicarbonate or bisulphate of soda, or carbolic acid may be combined with cocain or with mercury. Compresses soaked in oil of cade, Peruvian balsam in vaselin, and the tarry preparations are also useful. Among other sedative remedies which may be tried are extract of belladonna, ½ grain in suppository, lead in spirit and water, nitrate of silver in sweet spirits of niter (3 grains to 1 ounce), ichthyol, chloral hydrate, borax, benzoin, tincture of iodin, ointment of galls, chloroform ointment and oxid of zinc. Among antiseptics the most useful is mercury in the form of the oleate, combined with the oleate of morphin. Black wash, calomel ointment, and ammoniated mercury in benzoated lard (20 grains to 1 ounce) are valuable. Of caustics, nitrate of silver is the best, applied in solution, ½ dram to 1 ounce of sweet spirits of niter. The actual cautery may be applied, the patient having been anesthetized. In the purely neurotic forms of pruritus the less local treatment is used the better it will be for the patient. The right remedy can be found only by trying all things and holding fast to the good. The practitioner will be most successful who gives the greatest attention to detail, studying each case as a distinct problem and leaving untried no resource that can help in its solution.

The Lancet, London.

October 15.

17 Insanity and Epilepsy in Relation to Life Assurance. W. R. Gowers.
18 Knowledge and the Methods of Reaching It. P. H. Pye-Smith.
19 Relation of Therapeutics to Other Sciences in the Nineteenth Century. Oscar Liebreich.
20 *Case of Gigantic Renal Calculus, Illustrated with Remarks on Cases Where Renal Stones Form Obvious Tumors. A. Marmaduke Shield.
21 *Case of Fracture-dislocation of the Cervical Vertebræ. Ernest Ringrose.
22 *Pulsating Gangrene of the Lung. John L. Steven.
23 *Case of Blood Poisoning from Tonsillitis: Comparative Results Obtained from Two Varieties of Antistreptococcic Serum and from Perchlorid of Iron. Isambard Owen.

20. **Gigantic Renal Calculus.**—Sheild reports the case of a man, aged 39, who, after several very severe attacks of renal colic with hematuria, noticed a swelling which filled the left flank and loin, was rounded, firm, very tender, not moving with respiration. The diagnosis inclined toward a large ma-

lignant tumor with intrarenal hemorrhage. Operation was determined on and on opening the abdomen in the left semilunar line, an abscess containing a quantity of pus and two small stones was immediately opened. The kidney was greatly enlarged and firmly adherent to the surrounding parts. An enormous stone, which was subsequently found to weigh more than a pound, was removed with some difficulty. A nephrectomy was done, and when the kidney was sectioned two small stones were found in its substance. The difficulties of the operation were great. Pus and urinous fluid were pouring from the diseased mass over the intestines and wound. The operation, though performed with all possible speed, lasted one hour, and the patient at its termination was collapsed. The after-treatment consisted of saline and nutrient enemata, a small quantity of laudanum being used with the rectal injection. The patient eventually recovered. The stone, soaked in blood and fluid, weighed 19 ounces. When weighed dry on chemical scales, it weighed exactly 1 pound and half an ounce. It was 5½ inches long; circumference at the largest part, about 10 inches. Portions of the stone were broken away accidentally so that its original weight probably exceeded 19 ounces.

21. **Fracture Dislocation of the Cervical Vertebrae.**—A case of fracture dislocation of the neck is reported by Ringrose which is remarkable because of the disproportion between the accident and the mischief produced thereby, being the converse of what is usually found in these cases. The patient, aged 14, while diving into the river, collided with a man who was swimming by at the time. He was partially stunned, and said he felt "queer" in his head. On admission the patient complained of headache and pain at the lower part of his neck, which was rigid and slightly tender. There was no bruising, and no deformity was to be seen. There was neither loss of power nor of sensation anywhere. He was, however, unable to move his head except to a very limited extent, the side-to-side movement and extension being much more restricted than flexion. After a three days' stay in the hospital the boy returned home and no further symptoms developed. For six months he was in the habit of holding his head with his right hand under the right side of the lower jaw when walking about. Subsequently he joined the militia, having been passed as sound by the military surgeon. He appeared to be perfectly well, but carried his head rather stiffly. A skiagraph made at the time disclosed a forward displacement in the lower cervical region, the center of the body of the fifth cervical vertebra resting on the anterior superior edge of the body of the sixth. The bodies of the fifth and sixth vertebræ were small and wedge-shaped, the apex of the wedge being anterior. The body of the fourth vertebra is almost directly anterior to the fifth. The sixth and seventh cervical and first dorsal vertebræ are pushed backwards, while the cervical curve is greatly increased from the fifth vertebra upwards, the intravertebral spaces being considerably opened; a line drawn through the center of the body of the fourth and one drawn through the center of the body of the seventh forming an angle of about 100 degrees.

22. **Pulsating Gangrene of the Lung.**—The postmortem examination made in the case recorded by Steven showed that the pulsation was caused by the intimate relationship of the gangrenous lower lobe of the left lung to the left surface of the pericardial sac. There was a distinct tumor-like projection inwards of the pericardial wall which would receive the systolic shock of the heart, and this was transmitted to the chest wall through the semifluid contents of the gangrenous cavity. There was no localized bulging of the chest wall, as in most of the cases of pulsating empyema—the bulging in this case being internal into the pericardium. The pulsation was distinctly felt in the intracostal spaces of the left axilla, and at the base behind, and was of the same character as that felt over the apex beat of the heart. It was a distinct systolic pulse. The heart was neither hypertrophied nor fixed. The anatomic findings seemed to indicate that in order for an empyema to pulsate, the pus-filled cavity must directly abut on the pericardium, and the adjoining lung must be firmly bound to the chest wall by adhesions.

23. **Blood Poisoning from Tonsillitis.**—Owen's patient was suffering from a very severe sore throat. Both tonsils were swollen and a patch of membrane was observed on the left tonsil, but a bacteriologic examination failed to reveal either diphtheria bacilli or streptococci. The left tonsil later showed fluctuation, and on opening it, pus was discharged. The condition of the throat thenceforward improved, but the temperature continued to rise, notwithstanding repeated sponging, reaching 104.7. The chest was filled with rhonchi, the abdomen became distended and tympanitic, and the tongue became dry. The patient grew weak, tremulous, and began to wander in his mind. Two days later the left knee had swollen and there was evidence of effusion on the inner side of the joint. The next day both the delirium and sweating had increased. A blood examination was made and streptococci were found. The Widal test was negative. Owen then commenced treatment by injecting antistreptococcus serum. The injections were made subcutaneously in the flank, four injections of 20 c.c. within three days, but without any apparent result. Five days later the shoulder became painful and there was obvious swelling of the joint. Tubular breathing was heard over the left lung about the angle of the scapula. The apex beat of the heart had extended outside the nipple line and a "slapping" second sound was heard in the pulmonary area. Microscopic examination of the blood now revealed nothing abnormal. In the course of the next five days eight subcutaneous injections of 20 c.c. each of Roux's serum (Lister's having been used before) were given. The temperature sank steadily, the delirium disappeared, the shoulder became less painful and the general condition of the patient improved markedly. Treatment by Roux's serum was then recommenced, one injection of 20 c.c. being given on each of five days and 3 on the sixth. After an interval of two days, the serum was again resorted to and injections were given once a day for eight days, after which the patient was treated with a mixture consisting of 30 minims of tincture of perchlorid or iron, with 25 minims of dilute hydrochloric acid and 3 grains of sulphate of quinin, to be taken every six hours. Under this treatment the patient made an uneventful but protracted recovery. Owen attributes to the perchlorid of iron the destruction of the residual toxic elements which were not destroyed or neutralized by the antiserum.

Semaine Médicale, Paris.

24 (XXIV, No. 39.) De l'orientation auditive latérale: son rôle et son méchanisme. L. Bard.
25 Report of International Congress of Dermatology. (Commenced in No. 38.)
26 *L'exposition du charlatanisme à Breslau. F. Lejars.
27 Traitement du tétanos par les injections intraveineuses de solution physiologique. Hodson. Abstract.
28 (No. 40.) *Du rôle de quelques lymphagogues dans les œdèmes et les rétentions. L. Ambard.
29 La médecine et le don littéraire.
30 *La chambre pneumatique de Sauerbruch. F. Lejars.
31 *The Tourniquet After Accidents. Ahlberg. Abstract.
32 *Phototherapy of Vascular Nevus. H. Bordier. Abstract.
33 *Pure Guaiacol for Dressing Purulent Wounds. Propkhorov and Bialobjesky. Abstract.

26. **Exposition of Irregular Methods.**—See news columns, page 1176.

28. **Role of Digitalis and Theobromin in Edemas and Retentions.**—Ambard remarks that the knowledge recently acquired in regard to the part played by the chlorids in the production of edema has cast new light on the pathogenesis of both edema and retention. He has been studying the action of digitalis and theobromin from this new point of view. It is currently assumed that digitalis induces diuresis by its action on the heart, and theobromin by its action on the kidneys. He affirms, however, that digitalis has very little action on the heart. When it seems to be acting on that organ it is only indirectly, by means of the diuresis which it induces. Theobromin does not act directly on the kidneys, but only indirectly, by the same mechanism of induced diuresis. We have learned that certain metabolic albumino-toxic substances, noncrystalloids, have a powerful action on the blood, concentrating it and expelling the serum from it, driving it into the tis-

sues. He believes that digitalis and theobromin belong to a group of substances which have an opposite action, attracting the serum out of the tissues and drawing it into the blood—a process entirely distinct from osmotic action. The blood thus diluted gets rid of the excess of fluid by pouring it into the kidneys. The drugs in this group have an antagonistic action to the substances of the category first mentioned. They either neutralize these albumino-toxic substances directly, like an antibody, which theobromin accomplishes, or they induce the elaboration in the organism of certain other neutralizing substances; this is accomplished by digitalis. The retention or elimination of the salts, which in turn induce osmotic currents, is not a mere physico-chemical phenomenon, but is subsidiary to secretory phenomena which dominate the entire mechanism. Osmosis and diffusion are sufficient to explain conditions during a state of repose, but the secretory phenomena are the key to the conditions when things are stirring.

30. **Sauerbruch's Air Chamber.**—Lejars describes in detail the Sauerbruch air chamber and gives his impressions of it. (See THE JOURNAL, page 1181.) In the chamber are installed a large electric lamp, telephone and all the paraphernalia of an operating room with the advantages that the glass walls can be effectually washed and disinfected and spectators outside can watch the proceedings. The door is double, with an air space between. A dog was operated on under chloroform, the thorax opened and the lung seen to be on a level with the long incision made in the sixth left interspace. Respiration remained even and tranquil. The upper third of the stomach was drawn up into the wound and the esophagus severed, the cardial stump closed with purse-string suture and the upper stump implanted in the stomach wall to the right of the cardia. During the entire operation the lung retained its normal aspect, size and relations. It was pushed out of the way under a compress like the intestine during a laparotomy. Toward the close of the operation one of the aids left the room and neglected to see that the inner door was closed air-tight before he opened the outer door. The air rushed in, the lung collapsed and the respiration became rapid and jerky. It lasted but an instant, as the door was shut at once and the pneumatic pump worked a little faster to restore pre-existing conditions. Gradually the lung filled out and expanded again. As the pressure was increased to a trifle over the standard 10 mm. the lung ballooned out, protruding from the incision. The pump was regulated, the lung resumed its normal place and the operation was concluded. It had lasted an hour. There were six persons besides Lejars inside the air chamber during the entire intervention. It was rather warm, but they were able to breathe without discomfort. They felt the pressure only when the door was opened and then only in the ears. The pressure of 10 mm. is merely equivalent to an altitude of 900 feet. The pressure in the room was very slowly increased to this point, and as slowly restored to the ordinary pressure. The point that most impressed him in the whole experience was not the absence of pneumothorax so much as the permanence of the calm, regular, normal respiration of the animal, notwithstanding the extensive breach in his thorax. Sauerbruch has established that it is possible under these conditions to open both pleuræ and resect the sternum and ribs almost to the spine; in short, remove almost the whole of the "thoracic cage," without interfering with the calm regularity of the respiration. The clinical experience to date with the pneumatic chamber has been 10 operations on human subjects, with 4 recoveries. The subjects were all in desperate condition, enfeebled by the pathologic processes, which included gangrene of the lungs, stab wound of the heart and cancer of the esophagus. The phenomena observed in animals were reproduced in the human subjects. Deep narcosis is indispensable for the success in both. Sauerbruch is now studying the effects of hypertension, for application in operations on the skull, etc. He demonstrated the effects of a pressure of 60 to 70 mm. on the protrusion of the brain after trephining.

31. **Abuse of the Tourniquet.**—Ahlberg relates a number of cases to show the danger of gangrene from prolonged use of the tourniquet. He urges that it should be removed at the earliest possible moment, and never be left for twenty-six to thirty-six hours. It is also dangerous to apply the tourniquet any higher than is actually necessary. He thinks that the physician is frequently to blame, as he finds the tourniquet an easy mode of arresting hemorrhage when it would be much better in most cases to ligate the bleeding vessel.

32. **Phototherapy of Nevus.**—Bordier reports the complete cure of an extensive multiple vascular nevus on the face of a young girl. He applied a compressor to cover the region, with pressure sufficient to blanch the skin, the sound skin between the patches being protected by tin foil. The current of 16 to 18 amperes was turned into the arc light for an hour, the sittings repeated daily. The exposed parts in time looked as if they had been burned, and the applications were suspended until the burned tissues had been eliminated, which required about ten days. The daily applications were then resumed, four of these series being required. Under their influence the entire nevus was finally cast off as an eschar leaving sound skin in its place.

33. **Guaiacol in Treatment of Suppurating Wounds.**—Two Russian physicians simultaneously report excellent results from tamponing purulent wounds with gauze moistened with 20 to 30 drops of pure guaiacol. It even arrested the morbid process in one case of fulminating gangrene requiring amputation of the arm. After the operation the extension of the process in the muscles of the shoulder was completely checked by the guaiacol dressing.

Berliner klinische Wochenschrift.

34 (XLI, No. 38.) *Muscular Connection Between Auricle and Ventricle. K. Braeunig.—Ueber muskulöse Verbindungen zwischen Vorkammer und Kammer des Herzens.
35 *Query: True or Inoculated Modified Hydrophobia? L. Heydenreich.—Wirkliche Wuth-Krankheit oder angeimpfte modificirte Wuth?
36 *Ein Chancroid auf lupöser Grundlage bei starkem Diabetes, behandelt mit Roentgen-Strahlen. M. Levy-Dorn.
37 Ueber infectiöse und toxische haematogene Dermatosen. (Commenced in No. 37.) J. Jadassohn.
38 Ueber die Hydrocele des Egypters. E. Pfister (Cairo).
39 (No. 39.) *Increased Molecular Concentration of Blood in Kidney Affections. A. Loeb.—Rechfertigt erhöte moleculäre Blutconcentration bei Nierenerkrankung immer den Schluss auf Kranksein beider Nieren?
40 Thermopalpatorische Untersuchungen über die Temperatur im äusseren Gehörgang (in outer ear). E. Sommer.
41 *Chronisch-recidivirender Pyloro-Spasmus als Indication zur Operation. H. Schirokauer.
42 Ueber die Constitution des Diphtherie-Giftes (toxin). R. P. van Calcar.
43 Ueber Pseudotetanie und Uebergangsformen zwischen genuiner und hysterischer Tetanie. (Commenced in No. 38.) Hans Curschmann.
44 Report of LXXVIth Naturforscher Congress.
45 (No. 40.) *Digitalis as Cause of Sclerosis and Dilation of Right Coronary. T. von Openchowski.—Sclerose und Erweiterung der Coronar-Arterie des rechten Herzens durch Digitalis ermittelt.
46 *Heredity and Treatment of Squint. Hermann Cohn.—Ueber Vererbung und Behandlung des Einwarts-Schielens.
47 Ein operativ geheilter Fall von Labyrinth-nekrose mit Ausstossung der ganzen Schnecke (expulsion of labyrinth). L. Katz.
48 Ueber die praktisch chirurgische Bedeutung des Sesam-Beines im Musculus gastrocnemius. H. Wolff.

34. **Muscular Connection Between Auricle and Ventricle.**—Braeunig has found a well differentiated muscular apparatus which appears first in the higher animals and serves to transmit the muscular contractions from the auricle to the ventricle. The heart in reality is merely a muscular tube with peristaltic movements, and the supposed gap between the auricle and ventricle is bridged by this muscular connection which he has discovered in the septum cordis of rats, mice, a lion, in two monkeys and in man.

35. **True or Inoculated Hydrophobia?**—Heydenreich describes minutely a case of apparent hydrophobia which developed into complete idiocy. Five days after having been bitten by a dog suspected of rabies, the patient, a robust, intelligent housekeeper, 45 years old, submitted to Pasteur treatment. After 24 injections during twelve days an illness developed, accompanied by gastrointestinal and multiple paralytic symptoms, indications of the disturbances in swallowing and breathing of true hydrophobia, and a general decay of the mental faculties, with fatal termination in the tenth month. He queries whether the case can be regarded as one of true hydrophobia or whether it was a modified hydrophobia induced by the Pasteur

injections. Comparing the case with others in which the symptoms developed between the ninth to the fifteenth day after the bite, he thinks that they can be explained better by inoculation of the vaccin than by the bite. Another person, who had been bitten but had not been treated, remained healthy. The dog was a young one, and the probabilities are against its having been rabid.

36. **Cancroid on Lupus in a Diabetic Treated with Roentgen Rays.**—Levy-Dorn's patient had been diabetic for six years, and had had a patch of lupus on the buttocks for nearly twenty-eight years. The cancroid had developed on this patch. The ulceration, 5 by 6 cm. in size, healed under Roentgen treatment to a most satisfactory extent. The results observed show that diabetes (7 per cent. sugar on ordinary diet), is no contraindication to Roentgen treatment. The success in this case was especially gratifying on account of the duration and extent of the lesion and the lack of any special reaction to the exposures.

37. **Infectious and Toxic Hematogenic Dermatoses.**—Jadassohn's article was partially summarized on page 1180. In this concluding portion he discusses the question whether some of the toxic hematogenic erythematous dermatoses are not in reality inflammations. Many of the drug and serum exanthems are of an unmistakable inflammatory nature. He pleads that the term erythem may be restricted to the unmistakable vasomotor disturbances, and all other erythems be called what they truly are, that is, inflammations. His article is a comprehensive study of the subject from every point of view, based on his own experience and careful sifting of the literature. He expatiates on the importance of the co-operation of dermatology and internal medicine, adding that in many points the dermatologists may be givers as well as receivers.

39. **Molecular Concentration of Blood in Kidney Affections.**—The question which Loeb and Adrian propound in the title of their article is whether increased molecular concentration of the blood in case of a kidney affection necessarily means that both kidneys are affected. They describe a case which shows that this is not invariably true. The patient had a malignant tumor in the left kidney and the other kidney was supposed to be diseased on account of the fact that the freezing point of the blood was minus .635 C. The patient refused operation and, on account of the blood findings, the surgeons did not insist, but the necropsy revealed that the other kidney was free from any trace of chronic inflammation. We are not justified, therefore, in concluding, merely from the increased molecular concentration of the blood, that the second kidney is diseased in case of a demonstrated surgical affection of one kidney.

41. **Recurring Pyloric Spasm as Indication for Operation.**—Schirokauer describes 3 cases characterized by attacks of pains with copious vomiting, with intervals of complete health. The patients were extremely nervous subjects and he explains the symptoms observed as a chronically recurring pyloro-spasm and equally constant hypersecretion on a nervous basis, forming a complex neurosis. The pyloric spasm is the result of disturbance in the motor nerve tracts of the stomach, and the hypersecretion, of disturbance in the secretory nerve tracts. With the underlying neurasthenia, they form a vicious circle and relief is possible only by breaking up the circle. This can be accomplished by appropriate surgical measures, and he advocates gastroenterostomy as the most rational method of treatment of pyloro-spasm with chronic succorrhea. It may be a lifesaving measure in some cases, even when there are absolutely no organic changes at the outlet of the stomach. Two of his patients were restored to complete health; the other refused operation until it was too late to prove effectual and died in coma.

45. **Digitalis as Cause of Cardiac Dissociation.**—The graphic tracings and postmortem findings of a case are given to show the danger of routine treatment of heart affections with digitalis. The clinical diagnosis was rheumatic endocarditis and endarteritis on an alcoholic basis. After each dose of digitalis the action of the right heart became much stronger, while that of the left heart became weaker. Such a disturbance in the co-ordination could be explained only by changes in the right coronary artery which prevented it from contracting. The right ventricle was stimulated to excessive action. The left ventricle was unable to take charge of all the blood delivered by the right, and dyspnea and edema indicated the disturbed compensation. These phenomena could be explained only by assuming that digitalis had an exaggerated action on the right heart, which would be the consequence of dilatation of the right coronary. The clinical assumption that the right coronary was dilated was confirmed by the postmortem findings of sclerosis and a lumen 14 mm. in diameter, while that of the left coronary was only 8 mm. Pharmacologic dissociation, resulting from degeneration of the right coronary artery, has been observed by the writer in 2 previous cases. The curves show the weak pulsation of the left ventricle and the excessive action of the right. The duplicated pulse in the jugular vein was probably attributable to an accessory contraction of the right auricle. Dissociation of the heart action can be studied at the bedside more instructively than on animals' hearts.

46. **Treatment of Inward Squint.**—Cohn tabulates the statistics gleaned from his personal experience in respect to the heredity of squint. The more he inquired the larger the proportion of squint in the family history. Out of 27,000 patients he found 805 with squint and there was a history of squint among the relatives in 16 per cent. of the first series, 25 per cent. in the second, and 33 per cent. in the last. The various relatives were parents in 25 per cent., grandparents in 7 per cent., brothers or sisters in 26 per cent., and uncles or aunts in 12 per cent., a total of 172 relatives with convergent squint to 805 patients with the same. Worth's statistics show 52 per cent. heredity and Jensen's 70 per cent. In all Cohn's hereditary cases the squinting eye exhibited hyperopia, which he cites as a significant fact. He thinks that there is probably some unknown factor at work here, possibly a congenital alteration in the internus, which ophthalmologists will do well to seek. We are not positive even as to whether amblyopia is cause or effect of the squint. In regard to treatment he follows the following principles: 1, up to the fourth year he has the sound eye bandaged for a few hours every day while the child is at play; 2, during the fifth year he commences special exercises with convex glasses and the stereoscope; 3, corrects total hyperopia; 4, refrains from operating until the child is 10 years old, and does tenotomy in the sixth year only in case of great disfigurement; he promises improvement but not total cure, and advances the externus in extreme degrees of squint.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1015.

49 (XXVIII, No. 36.) *Schonende oder forcirte Entbindung bei Eklampsie (question of delivery). F. Kermauner.
50 *Vaginaler Kaiserschnitt bei Eklampsie (cesarean section). Hammerschlag.
51 *Extramedian Symphyseotomy. E. Ferroni.—Beitrag zum Lateralschnitt des Beckens nach Gigli.
52 *Tuben-Sondierung und Uterus-Perforation. W. Thorn.
53 (No. 37.) *Eklampsie im 5 Graviditäts-Monat ohne Foetus (bei Blasen-Mole). F. Hitschmann (Vienna).
54 Zur instrumentellen Beendigung des Abortus. R. v. Braun-Fernwald.
55 Ein neuer Operationstisch mit beweglicher Schulterstutze (operating table with shoulder support). Hartog.
56 (No. 38.) *Transverse Abdominal Section. O. Vertes.—Ueber den suprasymphysären Querschnitt.
57 *Permeability of Tubes for Fluids Injected. W. Thorn.—Die Durchgängigkeit der Tuben für in den Uterus injizierten Flüssigkeiten unter spezieller Berücksichtigung experimenteller Versuche und der Lebenden.
58 Beitrag zu den Verletzungen der weiblichen Sexual-Organe sub coitu (injuries). J. Saks.
59 Illuminator for Operating Rooms. F. König (Altona).—Beleuchtungsvorrichtung.
60 (No. 39.) *Ueber Lumbal-Punktionen bei Eklampsie. B. Krönig (Jena).
61 *Zur Diagnostik in der ersten Hälfte der Gravidität. O. Sarwey.
62 Zur Frage des Vagitus uterinus. R. Creutz.
63 (No. 40.) Case of Post-typhoid Annexitis. E. Dirmoser.—Ueber eitrige Adnex-Erkrankungen infolge vom Typhus abdominalis.
64 Die Behandlung des Inkompletten Abortes. F. d' Erchia.
65 Risum teneatis, amici oder: Die intra-uterine Taufe menschlicher Eier und Foeten (baptism). J. Kocks.

49. **Expectant or Forced Delivery in Eclampsia.**—Kermauner sifts the records at the Heidelberg gynecologic clinic in regard

to delivery in eclampsia. The principles followed are those of conservative treatment, and he thinks that the cases of aggravation of the attacks after delivery, and of the first onset during the puerperium, favor the assumption that the evacuation of the uterus alone is not sufficient. It is only a part of the general treatment.

50. **Vaginal Cesarean Section in Eclampsia.**—Hammerschlag reports 4 cases of vaginal cesarean section, and tabulates the others on record, a total of 21, including Stamm's case. In 8 instances no convulsions occurred after delivery; in 2 others this point was not mentioned, and in 3, one to eleven convulsions are mentioned after the operation (iodoform gauze tamponing). The mortality was 9 in 21; 2 deaths were due to infection and 1 to pneumonia. In 34 cases of abdominal cesarean section on record the mortality amounted to 55 per cent., and 4 of the deaths were due to sepsis. Even the most favorable statistics give 6 to 8 per cent. mortality.

51. **Extramedian Symphyseotomy.**—Ferroni adds another to the 26 cases on record in which symphyseotomy was performed to one side of the median line, according to Gigli's technic. In every instance the incision healed by primary intention with the exception of one "chloroform death." It is eminently superior to median symphyseotomy in the opinion of all who have performed the operation, both in the simplicity of its technic, the immediate results and the definite enlargement of the pelvis which it produces without interfering with the gait. The pelvic organs are left intact and the severed bone heals with most remarkable *restitutio ad integrum*. The present case is the only one known in which there was considerable hemorrhage from the bone and a puerperal hematoma of the labia. Notwithstanding these complications the operation was brilliantly successful in every particular. Gigli's technic was followed in every detail. (See page 764, abstract 81.)

52. **Sounding of the Tubes.**—Thorn presents arguments to prove that it is absolutely impossible to pass a sound through the fallopian tube in normal conditions. The cases in which it has been supposed to have been done must have been in reality perforations of the uterine wall. He found it impossible to pass a sound through the tube even in an inverted uterus and on the cadaver. In case of a myomatous uterus or deformity, with unusually wide opening into the tube, it may be possible to introduce a sound, as has been reported in 4 such cases in the literature and as occurred in a case personally observed. The orifice has to be unusually large, the walls of the tube exceptionally hard, straight and resistant, with other conditions which are seldom encountered.

53. **Eclampsia in the Fifth Month of Pregnancy Without a Fetus.**—Hitschmann reports a case from Schauta's clinic which he believes is without a parallel in the literature. Eclampsia is very unusual at so early a stage as the fifth month. Schauta, in his study of 342 cases of eclampsia in 134,345 childbirths, never observed any from the fourth or fifth month. The placenta had become completely transformed into a hydatid mole and not a trace of a fetus could be discovered. The patient—a iipara—was seen at the second week of the fourth month. The size of the uterus corresponded to the seventh month and on account of 7 per 1,000 albumin in the urine the patient was kept in bed on a strict milk diet. Labor commenced soon after, and the next day two very severe eclamptic attacks were observed, with complete loss of consciousness. Under Schleich narcosis the patient was delivered. Not a trace of normal placenta could be discovered in the hydatid mole which filled the uterus, and the fetus—if there had been any formation of a fetus—must have perished at a very early stage. This case is an argument against the theory that eclampsia is due to toxins from the fetus. The peripheral parts of the fetal ovum are probably the source of the toxin generation. The case in question unmistakably indicates this, as the villi were of unusual size and development, the epithelium itself proliferating. Veit's theory of deportation of the villi is superfluous in presence of such a case. Only 2 cases of eclampsia in connection with a hydatid mole are known, besides the present case. Veit succeeded in inducing albuminuria in animals by injecting placenta tissue. The patient recovered rapidly after delivery, with no recurrence of the eclamptic seizures.

56. **Transverse Abdominal Section.**—Vertes lauds the Pfannenstiel incision as destined to rank most prominently in gynecologic abdominal operations. He reviews the literature on the subject, and states that at Döderlein's clinic 133 patients have been operated on by this technic, which is being adopted more and more as a routine measure. The skin, subcutaneous tissue and fascia are incised transversely at the edge of the hair, above the symphysis. The fascia is detached from the muscles below and mobilized, and then the rectus muscles and peritoneum are incised on the linea alba.

57. **Permeability of Tubes for Fluids Injected into the Uterus.**—Thorn describes 6 cases of gynecologic affections in which he injected a solution of iodin or methylene blue into the uterus without the usual precautions to prevent its passage into the tubes. The solution of iodin was never found in the tubes, but the methylene blue did get into them to a slight extent. He is convinced that the permeability of the tubes for the blue is due to some physical capillary attraction of this fluid, absent in case of iodin, and that this explains the supposed permeability of the tubes. He is convinced that with ordinary precautions there is no danger of an injected fluid finding its way into the tubes.

60. **Lumbar Puncture in Eclampsia.**—Krönig's 3 eclamptic patients were treated by lumbar puncture. No immediate benefit was apparent, but the general condition was notably improved by the seventh to eighth hour, and all the patients recovered. He was impressed with the extremely high tension of the cerebrospinal fluid. The normal standard is said to be 120 mm. water column. In one of the patients the pressure was 500 mm. and during the attack it rose to 600 mm. and more. The fluid was withdrawn to an amount of 37.5 to 47 c.c. before the pressure fell to normal.

61. **Early Diagnosis of Pregnancy.**—Sarwey has never missed finding the fetal heart sounds in the thirteenth week of pregnancy since he has begun listening for them. They were distinctly audible even during the twelfth week in one instance. Good hearing and a practiced ear are necessary to detect them, with absolute silence in the room and anteroom, not even a clock ticking. A still more indispensable condition is persevering patience on the part of the investigator. Sometimes he has auscultated for twenty to thirty minutes before the faint heart sounds were perceptible. The difficulty in hearing them is probably due to the fact that they are audible only at a certain part of the uterine wall, and as the fetus changes its position it may be necessary to go over the entire area before they are located. They were generally found when the stethoscope was placed over the lower segment of the uterus, in the anterior wall, where it is thinnest. He therefore commences to auscult at this point just above or back of the symphysis, continuing the auscultation over the entire accessible uterine wall, if necessary, stroking the intestines out of the way, the bladder empty, and paying due regard to the location of the uterus and to the possible location of the fetus within. A displaced uterus must be corrected beforehand. In multiparæ with relaxed and thin abdominal walls it may be possible to draw the uterus into pronounced anteflexion and thus be able to auscult its rear wall. When the fetal heart sounds are detected their frequency must be determined with the watch and compared with the maternal pulse. When they correspond the diagnosis of a pregnancy is certain, even in the twelfth to the thirteenth week, seven or eight weeks earlier than the text-books admit as possible.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

66 (XXX, No. 38.) *Principles of Treatment of Syphilis. H. Hallopeau.—Grundsätze der Syphilisbehandlung.
67 *Zur Behandlung der Syphilis. O. Rosenthal.
68 *Bemerkungen über den Krebs. Jonathan Hutchinson.
69 *Paraleprose. G. Armauer Hansen.
70 *Die Therapie der Lepra. H. P. Lie.
71 *Ueber Lichtbehandlung nach Sensibilisation. Forchhammer.
72 *Ueber den Einfluss photodynamischer Substanzen auf die Wirkung der Röntgenstrahlen. R. Kothe.

73 Ueber ein Band-Compressorium für Röntgen-Aufnahmen. W. Cowl (Berlin).
74 Urteil über den Aerztestand aus der Zeit des Dreissigjährigen Krieges (profession in 1641). Zandy.
75 (No. 39.) Ueber den gegenwärtigen Stand und die Probleme der Lehre von der Blutbewegung (movement of blood). K. Hürthle.
76 Ueber die Bedeutung der Sensibilitätsprüfungen mit besonderer Berücksichtigung des Drucksinnes (tests of sensibility and sense of pressure). Ad. Strümpell.
77 *Ueber Lungen-Steine. R. Stern.
78 *Welche Aufgaben stellt die komplete Uterus-Ruptur der Therapie? Otto Küstner.
79 Ueber den pathologischen "Einfall." K. Bonhoeffer.
80 *Beitrag zum metastatischen Karzinom des Ciliarkorpers. W. Uhthoff.
81 Zur Entstehung der otitischen Kleinhirnabszesse; Infektion durch den Hiatus subarcuatus. V. Hinsberg.
82 Die Zähne als Eingangspforte der Tuberkulose (teeth as entering point for tub.). Partsch.
83 *Meine Versuche zur Uebertragung der Syphilis auf Affen (to monkeys). A. Neisser. (Commenced in No. 37.)
84 Experimentelle Untersuchungen über die Wirkung des Radiums auf embryonale und regenerative Entwicklungsvorgänge. A. Schaper.
85 Neuere Angriffe gegen den Darwinismus. R. Hertwig.
86 Wilhelm His, Obituary. W. Waldeyer.
87 *Report of Cancer Research Committee.

66. **Principles for Treatment of Syphilis.**—Hallopeau's principles are intensive treatment for four years, and not only intensive but continuous. General treatment must be accompanied by local measures as often as practicable. Metallic mercury is the one specific, the dose the largest amount that can be given without symptoms of intolerance, preferably through the skin or into the muscles. Later potassium iodid should be given a larger place and local treatment assume a more prominent rôle. In the after-affections vigorous specific treatment during the premonitory or incipient stages of tabes offers the only prospect for complete success. Vigorous treatment should also be resumed whenever a new symptom indicates the development of a new syphilitic focus in the spinal cord. Patients in the incipient stages of tabes can thus be kept in satisfactory condition for years. The same applies to progressive paralysis except that mercury alone is indicated in this case. Edema may be benefited by compression, cicatricial keloid by radiotherapy; ectropion and sequesters may require operation, dystrophies may be cured by electrotherapy. In inherited syphilis, after-affections resulting from disturbance in the embryonal elements, are scarcely amenable to treatment. The physician should treat the syphilitic with mercury, internally and externally, without cessation, and with potassium iodid as long as he is justified in assuming that the causal agent still lingers in the body.

67. **Treatment of Syphilis.**—Rosenthal advocates a chronic intermittent mercurial treatment of syphilis, adapting it to individual cases. He prefers subcutaneous injection of the less soluble salts of mercury. When inunctions are employed he thinks the effect is enhanced by keeping the patient in bed, as the inhalation aids in its absorption. This is particularly important in tabes, as the repose is also favorable in this nervous affection.

68. **Remarks on Cancer.**—Hutchinson's views in regard to the importance of certain drugs, especially arsenic in predisposing the tissues to malignant growths, were mentioned in these columns, page 1180. He thinks that this fact excludes the possibility of a parasitic origin for cancer. He knows of 12 examples of cancer developing in subjects who had been long under the influence of arsenic. He ascribes the tendency of chimney-sweeps to cancerous affections to the large proportion of arsenic in certain coals. He suggests that the gradual transformation of many eczematous or psoriasis affections into mycosis fungoides may be partially due to the protracted arsenic or iodin treatment applied. Some physicians maintain that syphilities are predisposed to carcinoma. It is possible that, not the syphilis, but the drugs employed to combat it, may be responsible for this tendency if it exists. In conclusion, Hutchinson describes some rare malignant affections, including ulcus crateriforme, lentigo maligna senilis and "potato" tumor of the neck. He advises extirpation of a neoplasm without waiting always for certainty in regard to malignancy.

69. **Paraleprosy.**—Hansen has examined a number of the descendants of lepers and never found any indications of the disease in them nor signs of resulting degeneracy. He also remarks that the thickening of the ulnar nerve, recently described as a "paraleprous" symptom, is merely due to the greater accessibility of the nerve in certain individuals.

70. **Treatment of Leprosy.**—The tuberous form of leprosy is essentially a skin affection, while the maculo-anesthetic variety is almost exclusively a nerve affection. The nervous system reacts to the latter with swelling of the nerves involved, accompanied by pain and fever. This reaction may be so strong that the infection is conquered, and the subject recovers. In the tuberous form, in which the process is restricted to the skin, this reaction seldom occurs in the early stages. When it does occur, it is much more intense and is not restricted to the nervous system, but involves also the skin and internal organs. A fatal termination is the rule, on account of the consequent degeneration of important organs, especially of the liver. Treatment should be based on these facts. The maculo-anesthetic form may be favorably influenced by general treatment, especially by potassium iodid and tuberculin, if the latter is given acording to the principles in which it is being applied now in tuberculosis. Both these substances act by promoting the reaction on the part of the organism, and both promise good results. The action of chaulmoogra oil is similar, but less constant. Carasquilla's serum probably acts in the same way, but is very uncertain and not always harmless. In cases in which no reaction follows the treatment, some other substance should be given a trial. It may be possible, Lie adds, that leprosy may be found transmissible to anthropoid apes, and that an effectual serum may thus be produced in time. "Science will have to climb up another round of the ladder, however, before we can see what prospects bacteriology has to offer in leprosy."

71. **Phototherapy After Sensitizing the Tissues.**—This communication proceeds from the Finsen Light Institute at Copenhagen, and reports extensive clinical research with phototherapy after the tissues had been injected with a 1 per 1,000 solution of erythrosin according to Dreyer's technic, to render the tissues more sensitive to the action of the light. About 350 exposures were made, the subjects—23 lupus patients. The results were negative in respect to any favorable action from the "sensibilization."

72. **Influence of Photodynamic Substances on the Action of X-Rays.**—Kothe is enthusiastic over the enhanced action of the *x*-rays after the tissues have been previously injected with a 1 per cent. or per thousand solution of eosin, an hour before exposure. He describes experiments on animals and with lupus and warts in the clinic. The injection of eosin enables the course of *x*-ray treatment to be much shortened, the exposure need not be so long, and the reaction occurs sooner and is more intense than without the eosin. The eosin injections also permit the energetic reaction to be restricted to a circumscribed area, while the uninjected, sound tissue around or above scarcely feels the action of the rays.

77. **Lung Stones.**—Stern describes 3 cases of the expulsion of concrements from the lungs after the sputa had been blood-stained for a longer or shorter period. They all consisted of calcium carbonate and phosphate with a trace of magnesia, and all seemed to have an organic foundation, containing tubercle bacilli in one instance. The stones or gravel were multiple, and expelled during coughing. One of the patients had coughed up 20 stones, some of them ⅜ of an inch long, after years of a catarrhal condition of the lungs, with symptoms finally suggesting a gangrenous focus. Tubercle bacilli were never found in his sputa, but streptococci were numerous. The patient was operated on by Mikulicz in the Sauerbruch air chamber. The right middle lobe was found covered with a pleuritic deposit, and felt unduly tough. It was sutured to the parietal pleura and the wound tamponed. The patient passed through the operation well. Lung stones may simulate tuberculosis or they may obstruct the air passages or induce actual crises or asthma or bronchial colics. The latter were marked in a fourth case.

78. **Treatment of Complete Rupture of the Uterus.**—Küstner recommends extensive laparotomy, careful wiping out of all

acumulations of blood or fluids in the peritoneal cavity, refraining from rinsing. Hemorrhage from the rupture should be controlled by ligatures. The bladder should be sutured in case of injury, and the tear in the uterus should be sutured or not, according to the circumstances. Extirpation of the uterus is required only in exceptional cases. The intervention should conclude with extensive Mikulicz tamponing of the uterus wound up to the laparotomy wound. Seven cases thus treated are described in full, with 40 per cent. recoveries, with 2 recoveries out of the 5 non-moribund patients. Two of the deaths were due to pneumonia or pre-existing infection. In future he intends to inject nucleinic acid to promote local leucocytosis as a preliminary to operation. He draws a sharp distinction between complete and incomplete rupture, the latter not requiring the energetic intervention which he advocates for the former.

80. **Metastatic Carcinoma in Ciliary Body.**—Uhthoff reports a case of this kind which was at first assumed to be a syphilitic gummatous affection with secondary iridocyclitis, but which proved to be a carcinoma. He rejects the possibility of a primary carcinoma in this region. Metastatic carcinoma of the choroid has a more rapid growth than other intraocular tumors.

83. **Inoculation of Monkeys with Syphilis.**—Neisser reports the results of inoculation of various kinds of monkeys with syphilitic virus. All were dubious or negative, except the inoculation of anthropoid apes. Passive immunity seemed to have been acquired by the chimpanzee, as subsequent injections were negative. His attempts to obtain an effectual serum from the animals have been failures so far, but he still hopes for better results in the future. Among the questions pressing for solution are those in regard to the various development of the primary and constitutional phenomena when the virus is inoculated into or under the skin or by direct injection into the blood; which organs serve as nests for the parasites; are these nests in the glands, and especially in those exhibiting lesions; is it possible in this way to learn points which will be useful in diagnosis to distinguish between the subjects really cured and those in whom the infection is merely in a deceptive, symptomless state? Special attention should be paid in such research to the organs of generation, to solve, if possible, some of the problems of hereditary syphilis. The question of reinfection is also one for experimental study. In regard to the virulence, is there a quantitative difference between the early and late forms, or is merely the age of the syphilis or the kind and intensity of the previous mercurial treatment, responsible for the variations in the virulence of the syphilitic processes, irrespective of whether they belong to the secondary or tertiary phase. [Neisser leaves for the tropics next March to carry on this research on monkeys under more favorable conditions. He expects to go to the Sunday islands for several months.—ED.]

87. **Cancer Research Committee.**—Benda referred to the case of pavement epithelium cancer in the bronchi published by his assistant, Watsuji, in the last *Zeitschrift f. Krebsforschung.* The patient was a young physician who presented the syndrome of pulmonary phthisis for years, but at the necropsy a small bronchial carcinoma was found. It had induced chronic bronchitis and recurring pneumonia. In another case, adhesions with the aorta simulated the syndrome of aneurism of the latter. In still another instance an attack of apoplexy was the only symptom of a carcinoma in a bronchus. Cerebral embolism had occurred from a thrombotic vein in the vicinity of the cancer, as also in 2 other cases in which the supposed brain tumor proved to be a metastasis from a small cancer in the lung. When careful search is made for cancer of the lung it is found to be more frequent than generally credited. His own statistics show that it forms 4 per 1,000 of all the deaths, and 4 per cent. of all cancer deaths. During one year, 1900, the proportion rose to 12 per 1,000 of the entire mortality. It almost invariably develops near the hilus. It is at first always concealed beneath a large layer of normal lung tissue, and later by indurated or suppurating pneumonic processes. The first or second branch of the bronchus is the usual site. (The discussion that followed is reported in detail, Orth, Behla and others taking part.)

Münchener medicinische Wochenschrift.

88 (LI, N. 36.) Experimenteler Beitrag zum Studium der oxydierenden Wirkung fluoreszierender Stoffe. Edlefsen.
89 Ueber die Wirkung fluoreszierender Stoffe (des Eosins) auf normale und hämolytische Sera. L. Lichtwitz.
90 Ueber paroxysmale Hämoglobinurie. J. Donath and K. Landsteiner.
91 Zur Lehre vom Ekzem. E. v. Düring.
92 Zur Kenntnis der Alkaptonurie. O. Schumm.
93 Zur Behandlung des Diabetes insipidus. B. Stein.
94 Ueber Ikterus und Diabetes auf nervöser Grundlage. M. Rheinboldt.
95 Inhalation mit phenylpropiolsauren Natron gegen Kehlkopf- und Lungen-Tuberkulose. Dr. Bulling.
96 Eine neue dermotherapeutische Bestrahlungs-Lampe. Jesionek.
97 Reply to Bassewitz in No. 29. M. Otto and R. O. Neumann.
98 (No. 37.) Diabetes insipidus mit zerebralen Herdsymptomen (cerebral focal symptoms). J. Grober.
99 Ueber Xanthoma diabeticum tuberosum multiplex. Derlin.
100 *Die Bedeutung der Leukozytose für die Indikationsstellung bei akuter Appendizitis. Sprengel.
101 Ueber das Vorkommen von Typhus- und Paratyphus-Bazillen bei Erkrankungen der Gallenwege (in affections of biliary passages). F. Blumenthal.
102 *Untersuchungen über den Magensaft (gastric juice). A. Bickel.
103 Tuberculosis Inoculated by Morphin Syringe. O. Bruns.—Impftuberkulose bei Morphinismus.
104 *Die Radiotherapie bei Gebärmuttergeschwülsten (uterine tumors). J. Deutsch.
105 Ueber die carcinomatöser Entartung der Kopf-Atherome (of head). D. G. Zesas.
106 *Ein Wasserdampfapparat zu therapeutischen Zwecken. Weissbart.
107 Ueber sporadischen Skorbut. B. Wagner. (Commenced in No. 36.)
108 (No. 38.) *Ueber die Vermeidung der Perforation lebender Kinder (to avoid perforation). J. Veit.
109 Ueber die Tuberkulose der menschlichen Plazenta. Geipel.
110 Zur Bakteriologie der Akne vulgaris. K. Kreibichs.
111 Ueber Bronchoskopie. H. Neumayer.
112 *Danger to Cecum from Distention in Ileus. E. Kreuter.—Ueber die Gefährdung des Coekum durch Blähung beim Dickdarmverschluss.
113 Fall von Sesam-Bein-Fraktur. H. Marx.
114 Zur Aetiologie der akuten Osteomyelitis. Durlacher.
115 *Zur Bewertung der Heilstättenbehandlung Lungen-Kranker (sanatorium treatment). E. Rumpf.
116 *Versorgung der Städte mit Kindermilch (milk supply). Trumpp.
117 Apparat für sterilisierte physiologische Kochsalzlosung, stets fertig zum Gebrauch (salt solution always ready). O. Pfeilsticker.
118 Gefensterter Mund-Spatel aus Nickeldraht (nickel wire spatula). C. v. Pirquet.
119 F. Wilhelm Zahn. Obituary.
120 Franz Riegel. Obituary.
121 *Die Organisation des Feldsanitäts-Wesens in der russischen Armee. A. Dworetsky (Moscow).
122 Die medikohistorische Abteilung des Germanischen Museums in Nurnberg. H. Peters.

100. **Leucocytosis in Appendicitis.**—Sprengel concludes from a study of 83 cases that the leucocytosis averages lower early in acute appendicitis than during the later stages. It increases parallel with processes in the peritoneum as well as in the appendix, and reaches its maximum in the later stages of destructive appendicitis. The count is less regular in the early than in the later stages. No characteristic difference could be discovered between the blood count in the serofibrinous and the purulent varieties of appendicitis.

102. **Gastric Juice Under the Ultra-Microscope.**—Bickel announces that the ultra-microscope has revealed that pure gastric juice is not a simple solution, but contains innumerable minute corpuscular elements in suspension. It is thus an emulsion. He proposes to call these minute bodies the "ultramicroscopic granula of the gastric juice." Pure water, saline solution and diluted hydrochloric acid show no such elements. Further study of the gastric juice showed that it varies in its molecular concentration at different periods of the digestion of meat, and sometimes is more concentrated than the blood. These researches were conducted on dogs with Pawlow fistulas.

104. **Radiotherapy of Uterine Tumors.**—Deutsch describes a number of cases of uterine tumors which retrogressed under Röntgen treatment. They were diagnosed as myomata, and one patient, whose case is reported in detail, measured 120 cm. around the waist, but under treatment was reduced to 95 cm. After 5 exposures the previous bladder troubles were relieved and vanished entirely after 7 more. The course of treatment lasted two years, with 90 exposures. A large coexistent struma has entirely vanished. In one of the cases the myoma rapidly

retrogressed during the course of 30 exposures, but another tumor, probably an ovarian cyst, showed comparatively little change. Two of the patients had blood-stained serous discharges from the vagina every time after the exposures. The myoma had caused hemorrhages in one instance, but these were much reduced under treatment. Two of the patients exhibited symptoms similar to those noticed during thyroid treatment of goiter, but they ceased when treatment was suspended. Patience and perseverance are needed to accomplish any results with radiotherapy of deep-lying tumors.

106. **Steam Substitute for Cataplasms.**—A steam generator over a spirit lamp connects by a tube with a very light metal pad which fits over the part to be treated. When the thermometer fastened in the generator indicates the boiling point, the faucet is turned and the steam sent through the metal pad, whence it passes by a return tube into a condenser. It thus works continuously for twenty hours without attention, a safety valve keeping the temperature always below a certain point. Cloths can be interposed to regulate the temperature felt by the skin. Pads of various shapes are provided to fit different parts of the body, including the eye.

108. **Avoidance of Perforation of Living Child.**—Veit has not allowed perforation of a living child to be done in his clinic at Leyden since he assumed charge in 1896. There have been 8,000 births since. In 26 cases in which it might have been indicated, he performed cesarean section or symphyseotomy, and all the children were born alive, except two, who probably succumbed to the gases of putrefaction from a physometra. Two of the mothers died; one was previously infected, but possibly might have been saved if the uterus had been removed with the child; the other succumbed to the results of the tearing out of the suture of the uterus. To avoid the necessity for perforation, the women should be taken to a maternity at once when trouble is anticipated.

112. **Danger to Cecum from Distension in Ileus.**—Kreuter relates the history of a case in which distension of the cecum from incomplete occlusion of the intestines caused gangrene. The ileocecal valve is liable to close backward, and the cecum has the thinnest walls of the entire large intestine, while it is liable to be kinked, and, even in normal conditions, always contains more gas and fecal matters than other parts of the bowels. He advises to make an opening at once into the cecum in case of suspicion of occlusion and evidences of localized distension. Irrespective of the point of the occlusion, whenever it assumes a threatening aspect, the chief danger always lies in the distension of the cecum which, in certain circumstances, inevitably occurs and may lead to the most serious consequences.

115. **Results of Sanatorium Treatment.**—See editorial.

116. **Milk Supply in Cities.**—Trumpp advocates that the Red Cross should assume charge of the milk supplies in cities, backed by the authority of the state and aided pecuniarily by the municipality. The dairies should not be more than an hour's ride from the city, and should deliver the milk in cans to central stations, where it should be put up in bottles containing a day's ration for an infant. The bottles should be distributed to numerous branches, conveniently located, perhaps in drug stores, and sold at cost price or given free to the poor. He states that 200,000 infants die every year in the German empire, and that three-fourths of this mortality is due to the feeding. The Red Cross is well organized throughout the country, the "Vaterländische Frauenverein" alone numbering 250,000 women members.

121. **Sanitary Service in Russian Army.**—Dworetzky draws a graphic picture of the Russian sanitary and medical service and its workings in the far east. Five "flying columns" were organized for general prophylactic measures against infectious diseases, and 10 for the disinfection service. Each contains 4 skilled bacteriologists. One was organized by the Moscow Internal Medicine Society. It has its own train, one car fitted up for the laboratory, one for the disinfecting apparatus and electric light plant, one for the living rooms of the detachment, with other cars for the ice plant. The St. Petersburg Institute for Experimental Medicine fitted out another detachment, which comprises 19 disinfectors and 2 physicians. All the personnel of the sanitary service were vaccinated against typhoid and dysentery free of charge. The army has suffered much less from infectious diseases than in any campaign before. At Moscow special courses were given to train persons in caring for the sick and wounded, and the lectures were attended by 600, while 150 more attended the hospital nurses' course, and 200 the Sisters of Mercys' course. He pays an exalted tribute to the devotion of the physicians in the field and their heroic deeds. Never has such unqualified appreciation and praise fallen to the lot of the profession as now. Major General Schupinsky telegraphed to the mayor of Moscow that he bowed his grey head low in homage to the medical detachment from that city, and such expressions are to be heard on every hand. For the first time in history the military order of St. George (for bravery) has been awarded to two physicians, Chabrostin and Banschtschikoff. The Red Cross at date of writing already had had to replace a number of physicians completely worn out by their services.

Brazil-Medico, Rio de Janeiro.

Last indexed page 766.

123 (XVIII, No. 28.) *Prophylaxia internacional. Convenção sanitaria internacional entre as Republicas Argentina, dos Estados Unidos do Brazil, Paraguay e Oriental do Uruguay.
124 (No. 29.) O loucura maniaca-depressiva (insanity). A. Peixoto. (Commenced in No. 28.)
125 (No. 31.) Complicaciones oculares da variola. Abreu Filho.
126 Contribuçao a serum-agglutinaçao do bacillo icterioõe. A. Furtado.
127 (Nos. 32 to 34.) A dysenteria amebica na infancia. O. de Oliveira.
128 Defesa social contra a tuberculose. A. Peixoto.
129 (No. 35.) *Um novo tratamento nao sangrento das varizes nas extremidades inferiores.—Prothese valvular da veia grande saphena com a paraffina solida. E. von Bassewitz (Porto Alegre).
130 *A hyperchloruraçao na febre amarella. A. Ferrari.
131 Defesa social contra o alcoolismo no Brazil. A. Peixoto.

123. **Text of the Sanitary Agreement between the South American States.**—The representatives of the presidents of the republics of Brazil, Argentina, Paraguay and Uraguay signed the sanitary convention last summer, the text of which is here given in full. It is to be binding for four years, with the privilege of extending it for another four years, if all agree. The measures coincide with those generally adopted at the present time for sanitation against plague, yellow fever and cholera, with special measures against transmission of plague by rats. The contracting powers agree not to close their ports against each other, but reserve the right to limit the number of ports open to vessels from infected countries. In order to benefit by the provisions of the present convention, the ships intended to carry passengers must have a physician permanently on board with apparatus for disinfection and extermination of rats and mosquitoes, with an ample supply of disinfectants, and suitable quarters for the isolation of the sick. One section of the convention is devoted to mosquito prophylaxis. Ships must guard against invasion by shore mosquitoes at the docks in ports infected with yellow fever. Ships arriving from an infected port must take measures to exterminate the mosquitoes on board under direction of the sanitary inspector. A corps of trained, international sanitary ship inspectors is to be appointed, the recommendations of these inspectors to be taken under consideration by the various states, irrespective of the nationality of the inspector.

129. **Paraffin Prothesis in Treatment of Varices.**—Bassewitz has been much pleased with the results of injection of paraffin to control incipient hernia. The success of this measure suggested to him the possibility of applying it to cure varices. He injects paraffin around the internal saphenous vein at one or more points, in amounts sufficient to compress the lumen of the vein, its obliteration following in time from the inflammatory reaction of the tissues. This supplements the incompetent valves of the vein. He prefers hard paraffin, and makes the principal injection near the junction of the saphenous with the femoral vein, with another injection below, if necessary. He has thus treated 2 patients. The severe neuritis varicosa observed in one case ceased as if by magic after the injections.

The patient can leave the bed the next day. Even if the paraffin should be absorbed in time, as it is always substituted by connective tissue, the compression of the vein that has been realized will be necessarily permanent in any event.

130. **Salt in Yellow Fever.**—Ferrari relates experiences to show the great retention of salt in yellow fever, and its discharge in large amounts as convalescence is established. Administration of salt is not tolerated by yellow fever patients.

Hygiea, Stockholm.

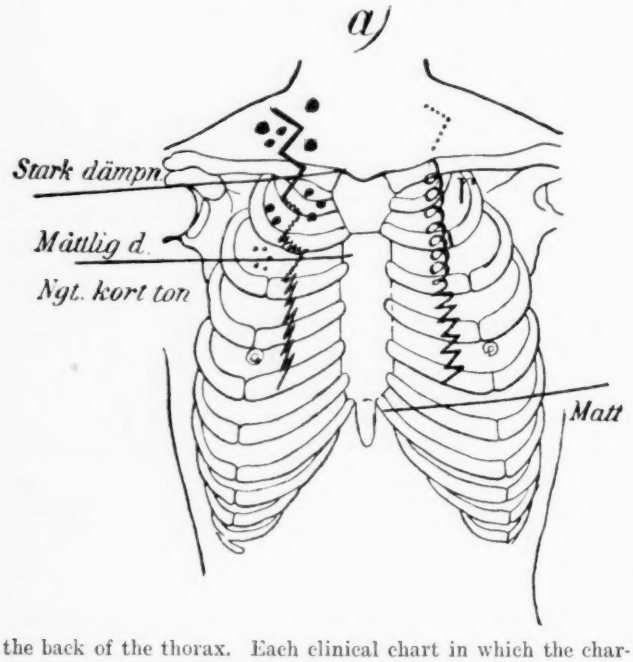
Last indexed XLII, page 1396.

132 (LXVII, No. 4.) Spontaneous Rupture of Uterus During Delivery. Abdominal Hysterectomy Followed by Acute Dilatation of Stomach. Recovery. E. Bovin.—Fall af spontan Uterusruptur, etc.
133 Stillings' Theory in Regard to Origin of Myopia. F. Ask.—Om Stilling's närsynthetsteori.
134 (No. 5.) *Giant Growth. A. Josefson.—Jätteväxt.
136 Botriocephalus and Gastric Secretions. O. Schauman and J. Grönberg.—Utöfvar den breda bandmasken nagot inflytande pa magsaftssekretionen?
137 *Spread and Prophylaxis of Tuberculosis. C. Runborg.—Hurusom vunnen erfarenhet om lungtuberkulosens spridningssätt indicerar kraftiga profylaktisja atgärder mot sjukdomen.
138 *A Practical System for Annotation of the Respiration. I. Holmgren.—Ett praktiskt system för beteckning af andningslud pa schabloner.
139 Two Cases of Hemorrhagic Pancreatitis. A. Reuterskjiold.—2 fall af pankreas-blödning.

134. **Giant Growth.**—Josefson does not believe that there can be normal giant growth. He considers excessive growth as necessarily pathologic in every instance. It is probably the result of acromegaly occurring before the termination of physiologis growth. In a case which he illustrates, a young man of 21, over 7 feet tall, exhibited unmistakable evidences of acromegaly. The lower jaw was unusually large, and there was pronounced cervico-dorsal kyphosis. Radioscopy also revealed enlargement of the sinus frontalis and of the sella turcica. The young man has a sister, not quite 17, who is already taller than he is.

137. **Prophylaxis of Tuberculosis.**—Runborg advocates compulsory notification as a most important measure in prophylaxis.

138. **Graphic Annotation of the Respiratory Sounds.**—Holmgren uses in his practice and at the hospital a couple of rubber stamps which print an outline of the front of the chest as shown in the illustration, and another similar stamp showing



the back of the thorax. Each clinical chart in which the characteristics of the respiration are to be noted is stamped with these two figures, and the peculiarities of the respiration are briefly noted down by arbitrary signs previously adopted as a kind of cipher. The upper part of the line on the left of the diagram represents bronchial inspiration and expiration; the fine waves below represent broncho-vesicular inspiration and bronchial expiration; the larger waves, vesico-bronchial inspiration and broncho-vesical expiration. The lower part of the line on the left represents coarse vesicular breathing with prolonged exspirium, and the lower part of the line on the right, coarse vesicular breathing. A line, slanting down to the right represents inspiration, and to the left, expiration. The line of loops represents normal sounds, and so on. The areas of pronounced dullness and moderate dullness are also marked off by horizontal lines. By this means it is possible to note down a complete record of the characteristics of the respiration in each case in much less time than it takes to describe it. Every physician can select a set of signs or an arbitrary cipher to suit himself. The words and lines in the illustration refer to the dullness.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and Other Topics of Interest to Students and Practitioners. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels and Carlsbad. Cloth. Pp. 302. Price, $2.00 net. Volume III. Fourteenth Series, 1904. Philadelphia: J. B. Lippincott Co. 1904.

A PHILOSOPHY OF THERAPEUTICS, the Foundation of Which Rests on the Two Postulates: First, that It Is the Human Organism that Is the Active Factor in the Healing of the Sick, and Not Drugs, and Second, that There Are Two Therapeutic Laws. By Eldridge C. Price, M.D. Cloth. Pp. 336. Price, $2.00. Baltimore: Nunn & Co. 1904.

"FIRST AID" HAND BOOK: A Collection of Instructions for Rendering Effective and Intelligent First Aid in Accidents and Sudden Illness. By M. J. Shields, M.D., Formerly Attending Surgeon to Emergency Hospital, Carbondale, Pa. Edited by Thomas Boundy. Cloth. Pp. 92. Published by the Office of Thomas Boundy, Jermyn, Pa. 1904.

LIGHT ENERGY: Its Physics, Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M.D., Fellow of the New York Academy of Medicine. With Numerous Illustrations in the Text and a Frontispiece in Colors. Cloth. Pp. 827. Price, $5.00 net. New York and London: Rebman Co. 1904.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY for Students of Medicine. By Winfield S. Hall, Ph.D., M.D. (Leipsic), Professor of Physiology, Northwestern University Medical School. With 89 Illustrations and a Colored Plate. Cloth. Pp. 245. Price, $1.75. Philadelphia and New York: Lea Brothers & Co. 1904.

HAND-BOOK OF PHYSIOLOGY. By W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. Nineteenth Edition with Nearly Seven Hundred Illustrations, Including Some Colored Plates. Cloth. Pp. 901. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN DISEASE. By Alida Frances Pattee, Graduate Boston Normal School of Household Arts. Second Edition, Revised and Enlarged. Cloth. Pp. 312. Price, $1.00 net. Published by the Author, 52 W. 39th St., New York City. 1904.

BLOOD PRESSURE as Affecting Heart, Brain, Kidneys and General Circulation. A Practical Consideration of Theory and Treatment. By Louis Faugeres Bishop, A.M., M.D., Physician to the Lincoln Hospital, New York. Cloth. Pp. 112. New York: E. B. Treat & Co. 1904.

THE ART OF CROSS-EXAMINATION. By Francis L. Wellman, of the New York Bar. With the Cross-examinations of Important Witnesses in Some Celebrated Cases. New and Enlarged Edition. Cloth. Pp. 404. Price, $2.50 net. New York: The Macmillan Co. 1904.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY, for the Use of Students. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians. Fifth Edition. Cloth. Pp. 236. Price, $1.50. New York and Bombay: Longmans, Green & Co. 1904.

PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lond.), F.R.C.S. (Eng.), Assistant Ophthalmic Surgeon, University College Hospital. Volume I. Histology—Part 1. Cloth. Pp. 388. Price, $3.50 net. New York: G. P. Putnam's Sons. 1904.

PROCEEDINGS OF THE NINETEENTH ANNUAL MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA, Washington, D. C., June 3 and 4, 1904. Paper. Pp. 78. Providence: Snow and Farnham. 1904.

DEPARTMENT OF HEALTH, CITY OF CHICAGO. Arthur R. Reynolds, M.D., Commissioner. Vital Statistics of the City of Chicago for the Years 1899 to 1903 Inclusive. Cloth. Pp. 128. Chicago. 1904.

REPORT OF THE SURGEON GENERAL OF THE ARMY to the Secretary of War, for the Fiscal Year Ending June 30, 1904. Paper. Pp. 193. Washington: Government Printing Office. 1904.

REPORT OF THE TRUSTEES OF BELLEVUE AND ALLIED HOSPITALS for Three Months Ending March 31, 1904. Paper. Pp. 15. New York: Martin B. Brown Co. 1904.

EIGHTEENTH REPORT OF THE ROYAL SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS for 1903. Paper. Pp. 142.